



PD90-0282CONT1  
17380/1206

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#29

Applicant: Ramanujan et al.

Serial No: 08/047,164

Group Art Unit: >2305

Filed: April 12, 1993

Examiner: >G. Ray

Title: HIGH SPEED BUS SYSTEM

Date of Deposit May 26, 1998

I hereby certify that this paper or fee is being deposited with the United States Postal Service as FIRST CLASS MAIL on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington DC 20231

Depositor Name Mary E. Haddad

Signature Mary E. Haddad

\* \* \*

**RENEWED PETITION TO REVIVE APPLICATION  
UNDER 37 CFR §§ 1.183 and 1.137(b)**

06/02/1998 SSAALEKU 00000029 041079 08047164

02 FC:141

1350.00 LA  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Box DAC

Sir:

The applicant hereby respectfully petitions the Assistant Commissioner of Patents to revive the subject patent application which became abandoned unintentionally on February 1, 1998.

Enclosed are:

1. Petition for a 4-Month Extension of Time with Authorization to Charge Deposit Account #04-1079.
2. Renewed Petition Under 37 C.F.R. §§ 1.183 and 2.237(b) To Revive an Unintentionally Abandoned Application;
3. Affidavit of Joan E. Federici in Support of Digital Equipment Corporation's RENEWED PETITION TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION UNDER 37 CFR §§ 1.183 and 1.137(b);
4. Affidavit of David Suhl in Support of Digital Equipment Corporation's RENEWED PETITION TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION UNDER 37 CFR §§ 1.183 and 1.137(b);
5. Affidavit of Joyce Lange in Support of Digital Equipment Corporation's RENEWED PETITION TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION UNDER 37 CFR §§ 1.183 and 1.137(b).

The Assistant Commissioner for Patents is hereby authorized to charge the fee of \$1,320.00 for the Petition to Revive (large entity) and any other fees that may be required by this paper to Deposit Account No. 04-1079.

All future correspondence should be addressed to:

Patent Law Group  
Digital Equipment Corporation  
111 Powdermill Road, MS02-3/G3  
Maynard, Massachusetts 01754-1499

Respectfully submitted,

DIGITAL EQUIPMENT CORPORATION

By: \_\_\_\_\_

*Joanne Pappas*

Joanne Pappas  
Reg. No. 40,117  
Attorney for Assignee

Patent Law Group  
Digital Equipment Corporation  
111 Powdermill Road, MS02-3/G3  
Maynard, Massachusetts 01754-1499  
(978) 493-6951

Enclosures



PD90-0282CONT1  
17380/1206

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Ramanujan et al.  
Application No. : 08/047,164  
Filing Date : April 12, 1993  
Title : HIGH SPEED BUS SYSTEM

Address to:

Assistant Commissioner  
for Patents  
Box DAC  
Washington, D.C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on

Date: May 26, 1998

Reg. No. \_\_\_\_\_

Signature: \_\_\_\_\_

Mary E. Hinkel  
Mary E. Hinkel Joanne N. Pappas

**RECEIVED**

JUN 03 1998

**OFFICE OF PETITIONS  
AND PATENTS**

**RENEWED PETITION UNDER 37 C.F.R. §§ 1.183 AND 1.137(b)  
TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION**

Sir:

Digital Equipment Corporation ("Digital"), the assignee of entire interest in the above-identified application, hereby submits this "RENEWED PETITION UNDER 37 C.F.R. §§ 1.183 AND 1.137(b) TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION" in response to the decision from the Office of Petitions (hereinafter referred to as the "Decision"), dated December 9, 1997, dismissing "PETITION UNDER 37 C.F.R. 1.183 TO WAIVE ONE YEAR TIME PERIOD REQUIREMENT IN 37 C.F.R. 1.137(b)" (hereinafter the "First Petition") dated June 26, 1998. In the interest of justice and equity, as well as in view of the elimination of the explicit one-year filing period under the revised 37 C.F.R. § 1.137(b), we hereby



request that our Renewed Petition to revive the above-identified application, which has been unintentionally abandoned, be granted.

In the above-identified application, U.S. Patent Application No. 08/047,164, a final Office Action was issued on June 30, 1994, and Applicants filed a Response to the final Office Action on November 30, 1994. The PTO subsequently issued an Advisory Action dated December 22, 1994, and the above-identified application became abandoned because of Applicants' failure to respond to the Advisory Action. (See Notice of Abandonment, 2/1/95). The Advisory Action and the Notice of Abandonment were sent to Kenyon & Kenyon by the PTO but not forwarded to Digital, because Kenyon & Kenyon believed that Digital was aware of the actions from the PTO and was assuming responsibility for the application. Because Digital never received the Advisory Action or the Notice of Abandonment, Digital took no affirmative action on the above-identified application after filing the Response dated November 30, 1994.

Page 2 of the Decision includes the statements that since it is unclear "what actually happened to the Notice of Abandonment," and since "Petitioners' representatives have not alleged non-receipt of the Notice, just that it was not forwarded to DEC . . . , any renewed petition should provide verified statement from any person with first hand knowledge of the facts surrounding the handling of the Notice of

Abandonment and Advisory Action." In this regard, the Renewed Petition is accompanied by an affidavit of Ms. Joan Federici, a paralegal at Kenyon & Kenyon who was involved in the handling of the present application leading up to, and during, the period of unintentional abandonment. Ms. Federici's affidavit sets forth Kenyon & Kenyon's handling of the present application leading up to, and during, the period of abandonment of the present application.

As stated in the affidavit of Ms. Federici, under the normal procedures for Digital's applications being handled by Kenyon & Kenyon, any Office Action received by Kenyon & Kenyon would have been forwarded to Ms. Federici, who would in turn report the Office Action to Digital. (Ms. Federici's Affidavit, ¶ 4). The Advisory Action and the Notice of Abandonment were received by Kenyon & Kenyon. (Ms. Federici's Affidavit, ¶¶ 11 and 12). However, Kenyon & Kenyon's docketing department, believing that Digital had assumed responsibility for the prosecution of the application and had filed a substitute power of attorney and a change of correspondence address, never forwarded either the Advisory Action or the Notice of Abandonment to Ms. Federici or to Digital. (Ms. Federici's Affidavit, ¶¶ 13 and 14). Kenyon & Kenyon's docketing department failed to forward the Advisory Action and the Notice of Abandonment because the notation on the file cover stated "Client Will Handle," which notation was written shortly after September 7, 1994, while the docketing

department personnel did not know that a change of correspondence address and a substitute power of attorney had not been filed by Digital. (Ms. Federici's Affidavit, ¶¶ 8, 13 and 14).

It is also noted on page 2 of the Decision that this Renewed Petition should provide information regarding "what arrangements DEC made and how did DEC docket the application after informing Kenyon & Kenyon that DEC would handle the matter internally?" In response to the above-noted inquiry, this Renewed Petition is accompanied by an affidavit of Ms. Joyce Lange, a legal assistant at Digital who was involved in the handling of the present application leading up to, and during, the period of unintentional abandonment, as well as by an affidavit of Mr. David Suhl, a patent attorney at Digital who was involved in the handling of the present application leading up to, and during, the time of unintentional abandonment. Mr. Dennis Maloney, the attorney at Digital who was responsible for U.S. Patent Application No. 08/047,164, left Digital in early 1997. The affidavits of Ms. Lange and Mr. Suhl set forth Digital's activity with respect to the present application leading up to, and during, the time of unintentional abandonment.

As noted in the affidavits of Ms. Lange and Mr. Suhl, in response to June 30, 1994 Office Action, Digital docketed an "Appeal/Continuation" due date for December 30, 1994. (Ms. Lange's Affidavit, ¶11; Mr. Suhl's Affidavit,

¶13). However, the need to file a notice of change of correspondence address was never docketed by Digital, as evidenced by the absence of any such docket entry in the docket history report. (Ms. Lange's Affidavit, ¶7; Mr. Suhl's Affidavit, ¶10). As the result of failing to notify the PTO of change in the correspondence address, the Advisory Action dated December 22, 1994 and the Notice of Abandonment dated February 1, 1995 were sent to Kenyon & Kenyon. The "APPEAL/CONTINUATION" due-date entry for December 30, 1994 was inadvertently overlooked, at least in part because the Advisory Action dated December 22, 1994 was never received by Digital. (Mr. Suhl's Affidavit, ¶15).

Digital and Mr. Dennis Maloney, the attorney at Digital who was responsible for U.S. Patent Application No. 08/047,164, never intended to abandon this application. Digital's computerized docket database indicates that the "APPEAL/CONTINUATION" due-date entry for December 30, 1994 was entered into the database on July 21, 1994, and that the "APPEAL/CONTINUATION" due-date entry was "closed" on June 25, 1996. (David Suhl's Affidavit, ¶13; Ms. Joyce Lange's Affidavit, ¶11). Had Digital intended to abandon U.S. Patent Application No. 08/047,164, the normal docketing procedure would have dictated that the "APPEAL/CONTINUATION" due-date entry be closed on or about December 30, 1994, rather than approximately 18 months later, on June 25, 1996. (David Suhl's Affidavit, ¶16; Ms. Joyce Lange's Affidavit, ¶21).

U.S. Patent Application No. 08/047,164 was unintentionally abandoned through inadvertence, based upon assumptions as to what Kenyon & Kenyon was required to do and what Digital was doing as a consequence of Digital's communications to Kenyon & Kenyon.

In the Decision, it is further noted that "[a]ny renewed petition under the 'unintentional' standard should include such documentary evidence as would establish petitioner's continuing intent to prosecute the invention . . . [ , such as] ongoing foreign patent activity for the instant subject matter, including issuance of other patents in this family, payment of foreign patent taxes or maintenance fees, sales, licences, etc." In addition, the Office of Petitions also noted that "[c]opies of any correspondence between petitioners and or DEC and counsel relating to this application during the period of abandonment, until the filing of this petition, are required."

Accompanying this Renewed Petition are copies of correspondence between Digital and Kenyon & Kenyon relating to the present application leading up to, and during, the period of abandonment. (See Appendix A). As can be seen from the correspondence included in Appendix A, subsequent to Mr. Maloney's letter dated September 7, 1994 to Ms. Federici of Kenyon & Kenyon, there was no further communication between Digital and Kenyon & Kenyon concerning U.S. Patent Application No. 08/047,164 until about April 29, 1997, (see also Joyce

Lange's Affidavit, ¶12), at which time it was discovered that the application had become abandoned.

This Renewed Petition is also accompanied by copies of documentary evidence which establish Digital's continuing intent to prosecute the invention, i.e., ongoing foreign patent activity for the subject matter of the presently abandoned U.S. patent application. In this regard, copies of correspondences relating to European Patent Application No. 91110755.5 (hereinafter referred to as the "EPO application") are attached as Appendix B. The EPO application, filed on June 28, 1991, corresponds to U.S. Patent Application No. 07/546,547, from which the presently abandoned U.S. Patent Application No. 08/047,164 was filed as a "file-wrapper-continuation" application. As discussed in further detail below, the EPO application has been continuously maintained and prosecuted from the date of filing, and the application has been recently granted by the EPO and is now being validated in several countries.

As indicated in the March 8, 1993 letter included in Appendix B, from Ann Murphy of Kenyon & Kenyon to Ms. Joyce Lange of Digital, there was clear understanding between Digital and Kenyon & Kenyon that the EPO application was to be maintained "up to and including the time of payment of the first annuity fees due in the national countries after grant." As indicated on the "List of Annuities" report dated May 15, 1997 from Computer Packages Inc., which report is also stamped

with the EPO receipt date of May 27, 1997, (attached as Appendix C), the seventh year annuity for EPO Application No. 91110755.5 was paid between November 1, 1996 and June 31, 1997, confirming that the annuities had been timely paid up to this point.

The next letter in the chain of correspondences regarding the EPO application is the letter dated August 2, 1996 from Mr. Ram Nath of Digital to Betten & Resch, the European agent handling the EPO application, in which letter Mr. Nath indicates that Digital wishes to bring the pending patent applications identified in the attached listing in-house "for further prosecution." (See Appendix B). Subsequently, in the letter dated December 1, 1997 from Mr. Nath to Betten & Resch, Mr. Nath indicates that Digital wishes to proceed with the national stage in Germany, France, Italy, the Netherlands and the United Kingdom. (See Appendix B). The national stage entry in these five countries is indicated in Row A of "Patent Tracking CPI Status Report" dated March 5, 1998, attached as Appendix D, which shows "I" (issued) status for the national stage applications corresponding to the EPO Application No. 9110755.5 in Germany, France, Italy, the Netherlands, and the United Kingdom.

The petitioner respectfully submits that the above-noted activities relating to the EPO application establish the petitioners' continuing intent to prosecute the invention represented by the abandoned U.S. Application No. 08/047,164.

In the Decision, the Office of Petitions noted that "waiver of the one year filing requirement of [old] 37 C.F.R. 1.137(b) . . . in this situation is not justified" since "there is no showing that the abandonment of this application or the belated filing of any petition to review were caused or contributed by circumstances beyond petitioners' or petitioners' voluntarily chosen representatives' control." (12/9/97 Decision, p. 2). The petitioner respectfully notes that "**circumstances beyond** petitioners' or petitioners' voluntarily chosen representatives' **control**" define the standard for **unavoidable abandonment** under 37 C.F.R. 1.137(a) rather than the standard for **unintentional abandonment** under 37 C.F.R. 1.137(b) which is the basis of the First Petition and this Renewed Petition. In fact, the "unavoidable abandonment" standard "requires no more or greater care than is generally used and observed by prudent and careful men in relation to their most important business." In re Katrapat, 6 U.S.P.Q.2d (BNA) 1863, 1866 (Comm'r Pat. & Trademarks 1988). Because of this, the elimination of the explicit one-year filing period under the revised 37 C.F.R. § 1.137(b), and the facts in this case showing the lack of any intent by the parties to abandon the application, the petitioner respectfully requests that this Renewed Petition be granted.



Respectfully submitted,

DIGITAL EQUIPMENT CORPORATION

Date: May 26, 1998

By: Joanne N. Pappas  
Joanne N. Pappas  
Reg. No. 46117

DIGITAL EQUIPMENT CORPORATION  
111 Powdermill Road  
Maynard, Massachusetts 01754-1418  
Telephone: (978) 493-6951  
191718-1

Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts 01754-1418

March 24, 1998

**digital**

Jong H. Lee  
Kenyon & Kenyon  
One Broadway  
New York, New York 10004

Re: Revival of PD90-0282Cont 1  
Your Ref. No.: 17380/1206

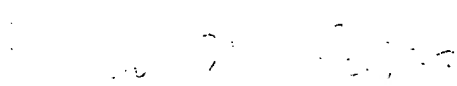
Dear Mr. Lee:

Enclosed are copies of the correspondence we have regarding the above captioned case and additional related correspondence included in the Kenyon & Kenyon file on the same case.

Please feel free to call me with any questions or comments at 978/493-6951. Thank you.

Very truly yours,

DIGITAL EQUIPMENT CORPORATION

  
Joanne N. Pappas  
Patent Attorney

Digital Equipment Corporation  
111 Powdermill Road MSO2-3/F9  
Maynard, MA 01754-1499  
978/493-6951

JNP:meh

ONE BROADWAY  
NEW YORK, NEW YORK 10004  
(212)425-7200  
FAX: (212)425-5288

## FACSIMILE COVER SHEET

**TO:** Joanne Pappas, Esq.  
Digital Equipment Corp.

**CC:** Robert T. Tobin, Esq.

**FAX NO:** 1-508-493-8025

**DATE:** March 17, 1998

**FROM:** Jong H. Lee

**SUBJECT:** Revival of PD90-0282 Cont. 1 (Our Ref. No.:17380/1206)

**NO. OF PAGES INCLUDING COVER:** 1

Please call (212)425-7200 Ext. if any pages were not received or are illegible.

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### MESSAGE:

Dear Ms. Pappas:

Thanks for your letter of March 13, 1998, enclosing Digital's records relating to Digital's activity with respect to the above-referenced application from November 30, 1994 to the date of filing the petition to revive. I note, however, that you have yet to send us a draft of an affidavit by Digital personnel(s) setting forth Digital's activity with respect to the above-referenced application from November 30, 1994 to the date of filing the petition to revive, as well as Digital's activity subsequent to the filing of the petition. As discussed during our February 11, 1998 telephone conference and reiterated in my facsimile letter of March 4, 1998, we had agreed that Digital would prepare the initial draft of the affidavit. Accordingly, we look forward to your sending us the affidavit as soon as possible.

Sincerely,

Jong H. Lee

186251

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Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418

March 13, 1998

John H. Lee  
Kenyon & Kenyon  
One Broadway  
New York, New York 10004

Re: Revival of PD90-0282CONT1  
Your Ref. No.: 17380/1206

Dear Sirs:

In response to your March 4, 1998 letter, enclosed are the materials that sets forth Digital's activity with respect to the above application from November 30, 1994 to the date of filing a Petition to Revive. There is no license activity on this technology.

Please call Joanne N. Pappas with any questions at (978) 493-6951. Thank you.

Very truly yours,

Joanne N. Pappas

JNP:meh

05-Mar-1998

## D E C I a w

## DOCKET HISTORY REPORT

16:56:04

Matter No: PD90-0282CONT1 Ctry: US

Resp Attorney: MALONEY, DENIS

Application Attorney: O/S

Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
02-Oct-1993	OFFICE ACTION	C	02-Jul-1993	04-Oct-1993	PACIULAN	KENYON1
08-Mar-1994	OFFICE ACTION	C	08-Dec-1993	08-Apr-1994	MALONEY	KENYON1
30-Sep-1994	APPEAL/BRIEF	O	22-Dec-1994		PAPPAS	KENYON1
30-Nov-1994	FINAL REJECTION	C	30-Jun-1994	30-Nov-1994	SUHL	PLG
30-Dec-1994	APPEAL/CONTINUATION	C	30-Jun-1994		SUHL	PLG
29-Jun-1997	MISCELLANEOUS	O	29-Apr-1997		PAPPAS	PLG
09-Feb-1998	MISCELLANEOUS	O	09-Dec-1997		PAPPAS	KENYON1

Matter No: PD90-0282

Ctry: EPO

Resp Attorney: PACIULAN, DICK

Application Attorney:

Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
17-Jan-1997	OFFICE ACTION	C	17-Oct-1996	11-Dec-1996	SUHL	PLG
17-Mar-1997	OFFICE ACTION	C	03-Feb-1997	25-Feb-1997	SUHL	PLG
02-Dec-1997	POST GRANT TRANSACTIONS	C	04-Sep-1997	01-Dec-1997	NATH	PLG

Matter No: PD90-0282

Ctry: US

Resp Attorney: MALONEY, DENIS

Application Attorney: O/S

Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
14-Mar-1993	FINAL REJECTION	C	14-Dec-1992	16-Feb-1993	PACIULAN	KENYON1
14-Mar-1993	APPEAL/CONTINUATION	C	02-Mar-1993	12-Apr-1993	PACIULAN	KENYON1

DATE 15MAY97  
#EPD

DE

REPORT 020202

PAGE 3

LIST OF ANNUITIES

FROM 01NOV96 TO 31JUN97

COMPUTER PACKAGES INC.  
414 HUNGERFORD DR. #300  
ROCKVILLE MD. 20850 U.S.A.

PATENT NO. APPLICATION NO. PUBLICATION NO. DATE YEAR AMOUNT LATE FEE TITLE HOLDER OUR FILE YOUR REF.

91110755.5	0464708	28JUN91	7	1,450		DIGITAL EQUIPMENT CORP	DE90-0282	
91110772.0	0464715	28JUN91	7	1,450		DIGITAL EQUIPMENT CORP	DE90-0283	
91401783.5	0463977	28JUN91	7	1,450		DIGITAL EQUIPMENT CORP	DE90-0331	
91401784.3	0463978	28JUN91	7	1,450		DIGITAL EQUIPMENT CORP	DE90-0334	
92305985.1	0520838	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0087	
92305982.8	0520836	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0193	
92305983.6	0520837	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0258	
92305984.4	0522764	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0272	
92305980.2	0522763	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0273	
92305978.6	0523678	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0274	
92305981.0	0520835	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0275	
92305979.4	0523985	29JUN92	6	1,400		DIGITAL EQUIPMENT CORP	DE91-0277	
87401502.7	0251923	30JUN87	11	2,000		DIGITAL EQUIPMENT CORP.	DE83-376	
88305988.3	0297890	30JUN88	10	2,000		DIGITAL EQUIPMENT CORP.	DE86-120	
88401689.0	0297989	30JUN88	10	2,000		DIGITAL EQUIPMENT CORP	DE87-002	
79	TOTAL			104,050				
79	TOTAL			104,050				

GRAND TOTAL

79

TOTAL

104,050

RECEIPT FROM EPO SHOWING THAT MAINTENANCE FEE WAS PAID ON APPLICATION NO. 91110755.5

ONE BROADWAY  
NEW YORK, NEW YORK 10004  
(212)425-7200  
FAX: (212)425-5288

## FACSIMILE COVER SHEET

**TO:** Joanne Pappas, Esq.  
Digital Equipment Corp.

**CC:** Robert T. Tobin, Esq.

**FAX NO:** 1-978-493-9025

**DATE:** March 4, 1998

**FROM:** Jong H. Lee

**SUBJECT:** Revival of PD90-0282 Cont. 1 (Our Ref. No.:17380/1206)

**NO. OF PAGES INCLUDING COVER:** 1

Please call (212)425-7200 Ext. if any pages were not received or are illegible.

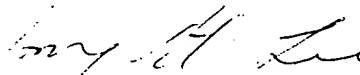
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### MESSAGE:

Dear Ms. Pappas:

Further to our telephone conference of February 11, 1998, this is a reminder regarding the need to prepare an affidavit by Digital personnel(s) setting forth Digital's activity with respect to the above-referenced application from November 30, 1994 to the date of filing the petition to revive, as well as Digital's activity subsequent to the filing of the petition, including activities relating to licenses and payment of foreign patent taxes and maintenance fees.

I look forward to your reply.

  
Jong H. Lee

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## MEMORANDUM

**TO:** FILE (17380/1206)  
**CC:** Robert T. Tobin  
**FROM:** Jong H. Lee  
**DATE:** February 19, 1998  
**RE:** **Petition to Revive Abandoned U.S. Patent  
Application Serial No. 08/047,164 for  
HIGH SPEED BUS SYSTEM (DEC case)  
Our Ref. No.: 17380/1206**

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This memorandum summarizes my telephone conversation of February 11, 1998 with Joan Federici of Kenyon & Kenyon and Ms. Joanne Pappas and Ms. Joyce Lange of Digital Equipment Corp.

The following topics were discussed during the telephone conversation.

1. Ms. Pappas noted that Digital had record of maintenance fees having been paid for at least one foreign patent corresponding to the above-referenced U.S. application. Ms. Pappas stated that she would forward us a copy of the record relating to maintenance fees.

2. Ms. Pappas stated that neither she nor Ms. Lange had searched for any record of licensing or royalty-payment activities involving either the above-referenced U.S. application or foreign counterpart patents, but Ms. Pappas agreed to search for such records and inform Kenyon & Kenyon of the search results.



3. Ms. Pappas agreed to prepare an affidavit setting forth Digital's activity relating to the above-referenced U.S. application in the time period from November 30, 1994 until May 13, 1997 and up to the date of filing the original petition, as well as the petition for reconsideration. I told Ms. Pappas that Kenyon & Kenyon would work with Digital in finalizing the affidavit.

4. Ms. Pappas agreed to provide Kenyon & Kenyon with copies of any docket entries relating to the above-referenced U.S. application.

J.H.L.

**KENYON & KENYON**

ONE BROADWAY  
NEW YORK, NEW YORK 10004  
(212)425-7200  
FAX: (212)425-5288

**FACSIMILE COVER SHEET**

**TO:** Ms. Joyce Lange

**FAX NO:** 508-493-6985

**DATE:** February 2, 1998

**FROM:** Robert T. Tobin

**SUBJECT:** 17380/1233 (1206)

**NO. OF PAGES INCLUDING COVER:** 3

Please call (212)908-6455 if any pages were not received or are illegible.

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**MESSAGE:**

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LAW OFFICES OF  
**KENYON & KENYON**

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CALIFORNIA OFFICE  
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SAN JOSE, CA 95110  
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FACSIMILE (408) 287-2155

EUROPEAN OFFICE  
BOCKENHEIMER LANDSTRASSE 97-99  
60325 FRANKFURT AM MAIN  
FEDERAL REPUBLIC OF GERMANY  
TELEPHONE (49) (69) 97 58 05 0  
FACSIMILE (49) (69) 97 58 05 99

January 5, 1998

**VIA FACSIMILE**

Ms. Joyce Lange  
Digital Equipment Corporation  
111 Powdermill Road - MS02  
Maynard, Massachusetts 01754-1418

Re: U.S. Patent Application Serial No. 08/047,164  
Your Ref. PD90-0282  
Our Ref. 17380/1233 (1206)

Dear Joyce:

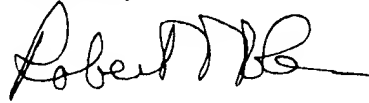
I have been talking to Joan Federici regarding the petition to revive the above-identified patent application.

In looking at the rules and reading the decision mailed on December 9, 1997, I believe we should petition for reconsideration and attempt to establish that it was abandoned unintentionally. In order to do this, we will need declarations and any documentary evidence that will establish petitioner's continuing intent to prosecute the invention covered by the application. I believe we will need to establish what Digital did in the time period from November 30, 1994 until May 13, 1997 and up to the date of filing the original petition, as well as the petition for reconsideration. We should include in this whatever documentary proof we can show that Digital prosecuted the counterparts in other countries and any other activities alluded to on pages 3 and 4 of the decision of December 9th on our petition to revive.

Ms. Joyce Lange  
February 2, 1998  
Page 2

Perhaps the best way is for the responsible attorney at Digital to contact me to discuss how best to proceed and what documents we can put together, hopefully by February 9th. I would also note that in the decision it indicated that the time to respond was noted to be extendable under 37 CFR 1.136(a).

Sincerely,

A handwritten signature in black ink, appearing to read "Robert T. Tobin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Robert T. Tobin

cc: Jong H. Lee, Esq.  
Joan E. Federici  
Lorrie McArdle

digital

J

Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418

December 1, 1997

VIA FACSIMILE

Mr. Jürgen Betten  
Betten & Resch  
Patentanwalte  
Reichenbachstrasse 19  
(Gartnerplatz)  
D-80469 München  
GERMANY

RE: Notice of Intention to grant a Patent  
European Patent Application No.: 91110755.5  
Your Reference No.: DEC 154 EP B/SE  
Our Reference No.: PD 90-0282 EPO

Dear Jürgen:

We respond to your letter of September 4, 1997 and the communication under Rule 51 (4). We approve the text of the application on the basis of documents attached to the communication.

Please note that we wish to proceed with the national stage only in the following five (5) countries: **Germany, France, Italy, the Netherlands, and the United Kingdom.** Please see the attached listing of our selected national associates.

This letter authorizes you to prepare the German translation of the granted EPO claims and text and to take all steps necessary to effect the granted patent in Germany. The FRENCH TRANSLATION of the EPO claims will be prepared by our French associate and sent to you in good time.

In due time, please forward to the selected representatives a copy of any necessary forthcoming EPO communications, e.g., EPO Form 2006, and a copy of the final text as intended for grant only to those associates who must prepare their own translations.

Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

Mr. Jürgen Betten  
Betten & Resch

- Page 2 -

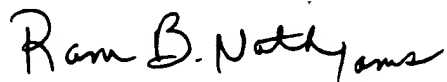
December 1, 1997  
PD 90-0282 EP

All selected national representatives are asked to send their debit notes or invoices directly to us and to submit to us the particulars of the respective national patents.

By copy of this letter, all our local national associates are informed of this procedure.

If you have any concerns with the transition to the National phase, please notify us immediately.

Yours very truly,



Ram B. Nath  
International Patent Consultant  
Patent Law Group

**PS PLEASE SEND US BY FACSIMILE THE FORM 2006 FORM AS SOON AS RECEIVED SO THAT WE WILL KNOW THE DATE OF MENTION OF GRANT. THANK YOU.**

RBN:rmj

Enclosures: Listing of National Associates

cc: Selected Local National Associates  
(Check address list)  
Joyce Lange/CPI  
Ann Skrzyniarz

Docket No: PD90-0282

Title: HIGH SPEED BUS SYSTEM

Ctry Priority: US Disc Status: C Resp Attorney: MALONEY, DENIS

Inventors: DEROSA,

RAMANUJAN,

SAMARAS,

KELLER,

STEWART,

Classifications \*\*

Digital	USPTO Class / Subclass	International Class / Subclass	Group Art Unit
2140.00			

Applications \*\*

Country	Status	Application No.	Date Filed	Patent Number	Date Issued	Resp Firm	Docket Attorney
AU	A	75281/91	23-Apr-1991	636739	30-Aug-1993	PHILLIPS	
CA	A	2,042,711	16-May-1991			SMART	
DE	I	91110755.5	28-Jun-1991	0474708	08-Jan-1992	BETTEN	SUHL
EPO	E	91110755.5	28-Jun-1991	0464708	08-Jan-1992	CABINET	
FR	I	91110755.5	28-Jun-1991	0464708	08-Jan-1992	KILBURN	
GB	I	91110755.5	28-Jun-1991	0474708	08-Jan-1992	STUDIO TOR	
IT	I	91110755.5	28-Jun-1991	0464708	08-Jan-1992	NAKAMURA	
JP	A	139187/91	11-Jun-1991			HAAGSCH	
NL	I	91110755.5	28-Jun-1991			KENYON1	PACIULAN
US	A	07/546,547	29-Jun-1990	0474708	08-Jan-1992		

Docket No: PD90-0282CONT1

Title: HIGH SPEED BUS SYSTEM

Ctry Priority: US Disc Status: I Resp Attorney: MALONEY, DENIS

Inventors: DEROSA, JOHN

RAMANUJAN, RAJ

SAMARAS, WILLIAM

KELLER, JAMES

STEWART, ROBERT

Classifications \*\*

Digital	USPTO Class / Subclass	International Class / Subclass	Group Art Unit
2140.00			

Applications \*\*

Country	Status	Application No.	Date Filed	Patent Number	Date Issued	Resp Firm	Docket Attorney
US	A	08/047,164	12-Apr-1993			KENYON1	PAPPAS



Corporate Law Department  
Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1499

*fax*

To Jean Frederici  
Title \_\_\_\_\_  
Fax 212-425-5288 Phone \_\_\_\_\_  
Total pages including cover 15 Date \_\_\_\_\_  
From Jayne Lange  
Title \_\_\_\_\_  
Fax (508) 493-\_\_\_\_\_ DTN Fax 223-\_\_\_\_\_  
Phone (508) 493-3737 DTN 223-\_\_\_\_\_  
Internet address First.Lastname@mso.mts.dec.com

Message:

If you have any problems receiving this fax, please call

Phone (508) 493-\_\_\_\_\_ DTN 223-\_\_\_\_\_

The information contained in this facsimile message is confidential information and may be protected by legal privileges. It is intended only for the use of the person or entity named above. If you, the reader of this message are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you received this communication in error, please notify the sender immediately by telephone and return the original message via U.S. mail to the sender at the address set forth above. Thank you.



Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts 01754-1499  
508.493.5111

VIA FACSIMILE

May 13, 1997

**digital**

Joan E. Federici  
Kenyon & Kenyon  
One Broadway  
New York, NY 10004

RE: U.S. Application Serial No. 08/047,164  
Your Ref: 17380/1206  
Our Ref: PD90-0282Cont1

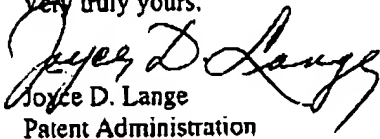
Dear Joan:

As a follow-up to our conversation today, this letter confirms that your firm will file a Petition to Revive for the above-referenced application. I have enclosed copies of the Response to the Final Office Action and a Petition for Extension of Time that were filed from our office.

Should your attorney have any questions, the responsible attorney to contact at Digital is Joanne Pappas. She can be reached by telephone at 508-493-6951.

If I can be of further assistance, please let me know.

Very truly yours,

  
Joyce D. Lange  
Patent Administration

Serial No. 08/047,164 Express Label No. \_\_\_\_\_  
File Date April 12, 1993

Commissioner of Patents & Trademarks  
Washington, D.C. 20231

Docket No. PD90-0282

Please acknowledge receipt of the following  
by date stamping this card and returning it  
to the addressee.

Patent Application of:  
Raj Ramanujan, et al.

Title:  
High Speed Bus System

Specification _____	Assignment _____
No. of Claims _____	Recording Fee _____
No. of Drawings _____	Authorization to _____
Declaration _____	Charge Dep. Acct _____
Filing Fee _____	Priority Document _____
Info. Disc. Stm. _____	Prelim. Amend _____
Pet. for Ext. of Time <u>X</u>	Req. for Reconsideration <u>X</u>

11/30/94---jmc

PD90-0282

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Raj Ramanujan, et al.

Serial No.: 08/047,164

Group Art Unit: 2305

Filed: April 12, 1993

Examiner: Ray, G.

Title: High Speed Bus System

I hereby certify that this correspondence is being deposited with the United States Postal Service as FIRST CLASS MAIL in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on:

November 30, 1994  
Date of mailing

[Signature]  
Signature

\* \* \*

PETITION FOR EXTENSION OF TIME

Hon. Commissioner of Patents and Trademarks  
Washington, DC 20231

Sir:

Applicant hereby petitions for a two-month extension of time to respond to the outstanding Office Action, dated June 30, 1994. The new period for response will expire November 30, 1994.

The Commissioner is hereby authorized to charge the extension fee for this Petition to the Digital Equipment Corporation Deposit Account No.: 04-1079 in the amount of \$360.00. A duplicate copy of this sheet is enclosed.

PD90-0282

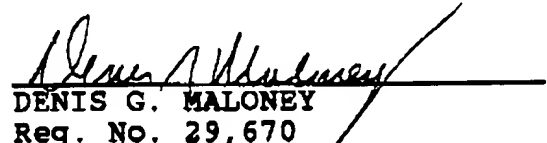
In the event the requested extension of time is insufficient, consider this as a Petition for an extension for the required period and charge the fee required to Digital Equipment Corporation Deposit Account No.: 04-1079.

A response to the outstanding Office Action is being filed herewith.

Respectfully submitted,

DIGITAL EQUIPMENT CORPORATION

By:

  
DENIS G. MALONEY  
Reg. No. 29,670  
Attorney for Assignee

Date: November 30, 1994

Digital Equipment Corporation  
111 Powdermill Road, MSO2-3/G3  
Maynard, Massachusetts 01754-1499  
(508) 493-9233

DGM:ds

Serial No. 08/047,164 Express Label No. \_\_\_\_\_  
File Date April 12, 1993

Commissioner of Patents & Trademarks  
Washington, D.C. 20231

Docket No. PD90-0282

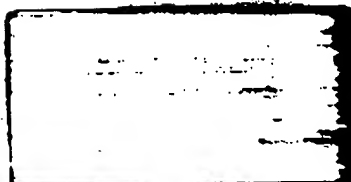
Please acknowledge receipt of the following  
by date stamping this card and returning it  
to the addressee.

Patent Application of:  
Raj Ramanujan, et al.

Title:  
High speed Bus System

Specification _____	Assignment _____
No. of Claims _____	Recording Fee _____
No. of Drawings _____	Authorization to _____
Declaration _____	Charge Dep. Acct _____
Filing Fee _____	Priority Document _____
Info. Disc. Stm. _____	Prelim. Amend _____
Pet. for Ext. of Time <u>X</u>	Req. for Reconsideration <u>X</u>

11/30/94---jmc



PD90-0282

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Raj Ramanujan, et al

Serial No.: 08/047,164

Group Art Unit: 2305

Filed: April 12, 1993

Examiner: G. Ray

Title: High Speed Bus System

I hereby certify that this correspondence is being deposited with the United States Postal Service as FIRST CLASS MAIL in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on:

November 30, 1994  
Date of mailing

James M. Collins  
Signature

\* \* \*

Request for Reconsideration Pursuant to 37 C.F.R. § 1.116(a)

Hon. Commissioner of Patents and Trademarks  
Washington, DC 20231

Sir:

In response to the Final Office Action dated June 30, 1994, applicant respectfully requests reconsideration in accordance with the provisions of 37 C.F.R. §1.116(a) as follows.

PD90-0282

AMENDMENTIn the Claims:

1. (Five times Amended) A bus system, comprising:

(a) a plurality of bus elements, with each of the plurality of bus elements [selectively] making [a request] requests for access to at least one other bus element;

(b) a central unit having a plurality of bus inputs and a plurality of bus outputs, with the central unit selectively coupling at least one of the inputs to at least one of the outputs, the central unit providing for an arbitrated, point-to-point coupling of a particular one of the plurality of bus elements with the at least one other bus element;

(c) a first plurality of unidirectional point-to-point buses for coupling in a first direction the bus elements to the central unit bus inputs;

(d) a second plurality of unidirectional point-to-point buses for coupling in a second direction each output of the central unit to a respective bus element; and

(e) arbitration logic connected to the plurality of bus inputs of the central unit to which the first plural-

PD90-0282

ity of unidirectional point-to-point buses connect, the arbitration logic for granting each of the bus elements access to the at least one other bus element through the central unit one at a time based upon the requests from the bus elements.

#### REMARKS

Reconsidered and reexamination are respectfully requested in the identified patent application.

The Examiner rejected claims 1-29 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of Applicant's invention.

Applicants have amended independent claim 1 to recite "a plurality of bus elements, with each of the plurality making a request for access to at least one other bus element". Thus, applicants have deleted "selectively". Applicants maintain that as amended, claim 1, and dependant claims 2-29 now particularly point out and distinctly claim the subject matter of their invention under 35 U.S.C. §112, second paragraph and thus the rejection has been overcome.



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The Examiner rejected claims 1-19, 30-35 and 37-39 under 35 U.S.C. §103 as being unpatentable over Rodiger et al. in view of Culler.

Applicant's claims 1-19, 30-35 and 37-39 are patentably distinct over the cited references. Applicant's claim 1 as amended, recites ... a plurality of bus elements, with each of the plurality of bus elements making requests for access to at least one other bus element...

The Examiner states that the references "fails to expressly teach the limitation of one bus element making a request for access to at least one other bus element". Further, the Examiner's specific reasons why one skilled in the art would be motivated to apply the teachings of Rodiger and Culler does not address the basis of applicants' invention. The Examiner states that "it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rodiger to include processor to processor communication...because it is well within the skill of an ordinary person to realize that outputs from a bus can be coupled to a memory and to it's associated processor (Culler teaches that in Fig. 6, elements 544, 548)". Applicants submit that Culler describes a bus arbitration system in which if a processor unit is denied access to the

PD90-0282

system bus, and if there is no current conflict in requesting the processor unit's associated local memory, then a request to access the associated local memory, rather than the system bus, is granted. Applicants claim 1 recites on the other hand that the buses are coupled to the central unit via uni-directional buses (see the specification page 6 and claim 1 sections c and d). Therefore, claim 1 requires a unidirectional point-to-point connection to the target bus, rather than through the associated memory as in Culler, and thus has improved access to a target element.

Thus, claim 1 which further recites ... a first plurality of unidirectional point-to-point buses for coupling in a first direction the bus elements to the central unit bus inputs ..., nor ... a second plurality of unidirectional point-to-point buses for coupling in a second direction each output of the central unit to a respective bus element... is neither described nor suggested by the combination of cited references.

The legal standard to be used when evaluating a claim under section 103 is to look at the teachings of the prior art as a whole for what they fairly teach, and neither the reference's general nor specific teachings may be ignored. The prior art must not only disclose each element of

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the claim, but must also provide a suggestion or incentive to make the combination made by the inventor. Therefore, applicant's claim 1 is patentably distinct over the references since neither Rodiger nor Rodiger in combination with Culler describe or suggest the above mentioned claimed combination of unidirectional point-to-point buses coupled to a central unit.

Applicant's claims 2-19 are patentably distinct over the cited references for similar reasons as given above with reference to the independent claim upon which they are based.

Applicants maintain that claims 2-4 further limit claim 1 and are not simply a matter of design choice. Each of the three mentioned circuits, the state machine in claim 2, the OR gate in claim 3 and the multiplexer in claim 4, add further patentably distinct limitations to claim 1. For example, the state machine called for in claim 2 (see FIG.s 2 and 3, item 42) "stores the output for one cycle before providing it at its output". (see specification page 9, Line 24-25). The OR gate called for in claim 3 (see FIG. 2, items 37 and 41) and the multiplexer called for in claim 4 (see FIG. 3, items 37 and 41) along with the logic element 50 provide alternative techniques to combine the point-to-

PD90-0282

point signals (See page 5 lines 21-25 for the OR gate for example).

Similarly, applicants maintain that claims 5-19 provide patentably distinct features to Applicants claim 1 and are therefore also allowable over the cited references.

Applicant's claim 30 was rejected by the Examiner for the same reasons as claim 1. Claim 30 recites ... a plurality of first uni-directional point-to-point buses, with one bus coupling each of the central processing units to an input of the combining logic...a plurality of second uni-directional point-to-point buses coupling the output of the combining logic to the central processing units ... plus a ...plurality of central processing units... and ...a shared memory... plus a ...memory controller... Therefore, Applicants maintain that claim 30 is patentably distinct over the cited references for similar reasons to those given above with reference to claim 1.

Applicants maintain that claims 31-32 further limit claim 30 and are not simply a matter of design choice. Each of the mentioned circuits, the combining logic in claim 31 and the multiplexer in claim 32, add further patentably distinct limitations to claim 30. The combining logic called for in claim 31 and the multiplexer called for in claim 32 provide alternative techniques to combine the

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point-to-point signals. Therefore the applicant's believe that the Examiner's rejection is improper and should be removed.

Applicants maintain that method claim 33 is patentably distinct over the cited references because claim 33 recites ...coupling each of the bus elements to a central unit with a separate first uni-directional bus... As explained above with reference to claim 1, the cited references do not describe nor suggest the claimed combination of features.

Applicants maintain that dependent claims 34 and 35 are allowable as further limitations on claim 33 above, since claim 34 recites ...a plurality of central processing units and a shared memory. Claim 35 recites the method of ...selecting between the inputs on the first buses...and the bus from the memory.

Applicants maintain that dependent claims 37-39 add further patentably distinct limitations to the claims above, and are therefore allowable, Claim 37 limits claim 2 by providing an alternative technique to combine the point-to-point signals, namely a latch. Claims 38 and 39 limits claim 5 and 1 in a similar fashion and are therefore add patentably distinct limitations.

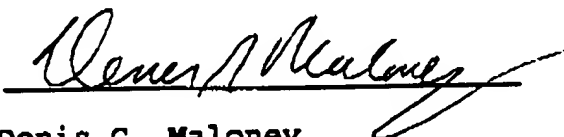
PD90-0282

Applicants note that the Examiner did not reject claims 20-29 over the prior art, and objected to claim 36 as being dependant on a rejected base claim.

Applicants submit that in view of the above amendment and remarks, that claims 1-35 and 37-39 are patentably distinct over the references.

Therefore, reconsideration and re-examination of this application is respectfully requested since the amendment places the application in condition for allowance or better form for appeal by materially reducing the issues on appeal.

Respectfully submitted,



Denis G. Maloney  
Reg. No. 29,670  
Attorney for Assignee

Date: November 30, 1994

Digital Equipment Corporation  
111 Powdermill Road, MSO2-3/G3  
Maynard, MA 01754-1499  
(508) 493-9233

DGM/ds

LAW OFFICES OF  
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NEW YORK, N. Y. 10004  
(212) 425-7200  
FACSIMILE (212) 425-5288

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WASHINGTON, D. C. 20036-5405  
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FACSIMILE (202) 429-0796

CALIFORNIA OFFICE  
RIVERPARK TOWERS  
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SAN JOSE, CA 95110  
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FACSIMILE (408) 287-2155

EUROPEAN OFFICE  
BOCKENHEIMER LANDSTRASSE 97-99  
60325 FRANKFURT AM MAIN  
FEDERAL REPUBLIC OF GERMANY  
TELEPHONE (49) (69) 97 58 05 0  
FACSIMILE (49) (69) 97 58 05 99

December 31, 1997

VIA FEDERAL EXPRESS

Ms. Joyce Lange  
DIGITAL EQUIPMENT CORPORATION  
MS02-3/G3  
111 Powdermill Road - MS02  
Maynard, MA 01754-1418

Re: U.S. Patent Application Serial No. 08/047,164  
Your Ref.: PD-90-0282 Our Ref. 17380/1233 (1206)

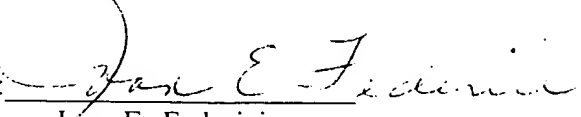
Dear Joyce:

We have recently received a response mailed December 9, 1997 in connection with the above-identified patent application. Enclosed please find a copy of the petition to waive one year requirement and revive the application. The petition was dismissed.

A request for reconsideration must be submitted two months from December 9, 1997, i.e., February 9, 1998 (extensions of time are permitted). Please let us have your instructions with regard to this matter as soon as possible.

Very truly yours,

KENYON & KENYON

By:   
Joan E. Federici  
Legal Assistant to  
Robert T. Tobin

Enclosure

cc: Robert T. Tobin, Esq.

Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts 01754-1499  
508.493.5111

RECEIVED  
KENYON & KENYON  
NEW YORK, N.Y.

VIA FACSIMILE

May 13, 1997

**digital**

CONFIRMATION COPY

Joan E. Federici  
Kenyon & Kenyon  
One Broadway  
New York, NY 10004

RE: U.S. Application Serial No. 08/047,164  
Your Ref: 17380/1206  
Our Ref: PD90-0282Cont1

Dear Joan:

As a follow-up to our conversation today, this letter confirms that your firm will file a Petition to Revive for the above-referenced application. I have enclosed copies of the Response to the Final Office Action and a Petition for Extension of Time that were filed from our office.

Should your attorney have any questions, the responsible attorney to contact at Digital is Joanne Pappas. She can be reached by telephone at 508-493-6951.

If I can be of further assistance, please let me know.

Very truly yours,

Joyce D. Lange  
Patent Administration



Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts 01754-1499  
508.493.5111

SEP 10 8 35 AM '94

**digital**

VIA FACSIMILE - ORIGINAL MAILED  
(212) 425-5288

September 7, 1994

Kenyon & Kenyon  
Attorneys at Law  
One Broadway  
New York, N.Y. 10004

Attention: Joan E. Federici


Subject: Digital Ref.: PD90-0282 CONT1  
U.S.S.N. 08/047,164  
Your Ref.: 17380/1206

Dear Joan,

Regarding our letter of July 28, 1994 which is in response to your letter of July 15, 1994, addressed to Denis G. Maloney, Digital has elected to handle this matter directly. Therefore, all correspondence in connection with the above-mentioned case should be forwarded directly to Digital at the above address. Digital will file a change of correspondence address form in the U.S.P.T.O.

If you have any questions, please do not hesitate to contact me at (508) 493-9233.

Sincerely,

  
DENIS G. MALONEY  
Senior Patent Attorney

DS:mrh

**AFFIDAVIT**  
**of Joan E. Federici in Support of Digital Equipment Corporation's**  
**RENEWED PETITION UNDER 37 C.F.R. §§ 1.183 AND 1.137(b)**  
**TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION**

State of New York     )  
                                  ) ss:  
County of New York    )

I, **Joan E. Federici**, being duly sworn, depose and say:

1.     I have personal knowledge of the facts stated herein and make this statement in support of Digital Equipment Corporation's ("Digital") "RENEWED PETITION UNDER 37 C.F.R. §§ 1.183 AND 1.137(b) TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION" filed herewith for revival of abandoned U.S. patent application no. 08/047,164.

2.     I am a paralegal at Kenyon & Kenyon and have been employed in this position since September 1993.

3.     On or about June 1994, as part of my job responsibilities at Kenyon & Kenyon, I was assigned the task of overseeing Digital's United States and foreign patent applications, which task included reporting all official actions received from the U.S. Patent & Trademark Office (the "PTO") concerning Digital's applications to my counterpart at Digital, Ms. Joyce Lange, a legal assistant in Digital's patent law group.

4. In connection with my responsibilities outlined in paragraph 3, Kenyon & Kenyon instituted a procedure whereby: a) Kenyon & Kenyon's docket department was to send all Office Actions from the PTO concerning Digital's U.S. patent applications to me; b) I was to report the received Office Actions to Digital; and c) upon receipt of Digital's authorization to proceed with preparation and filing of a response to the Office Action, I was to send the application file to the Kenyon & Kenyon attorney responsible for preparing and filing the response.

5. A final Office Action on U.S. patent application no. 08/047,164 was received by Kenyon & Kenyon on July 5, 1994, and I reported the final Office Action to "Dennis G. Maloney, Esq., c/o Ms. Joyce Lange" of Digital in a letter dated July 15, 1994. At this time, Mr. Maloney was the in-house attorney at Digital responsible for handling U.S. patent application no. 08/047,164.

6. In a letter dated September 7, 1994, Mr. Maloney advised me that Digital would directly handle the prosecution of the above-identified application, and that Digital would file a change of address form in the PTO.

7. Soon after receiving Mr. Maloney's letter of September 7, 1994, I verbally notified Kenyon & Kenyon's docket department that Digital would be solely responsible for handling U.S. patent application no. 08/047,164.

8. Subsequent to my notification described in paragraph 7, I placed the notation "Client Will Handle" on the file cover for U.S. patent application no.

08/047,164, and the docket department closed the file. The notation "Client Will Handle" was written shortly after September 7, 1994, since it was normal Kenyon & Kenyon practice around this time to indicate on the file cover such instruction from the client within a short time of receiving the instruction.

9. Subsequent to Mr. Maloney's letter dated September 7, 1994, there was no further communication between Digital and Kenyon & Kenyon concerning U.S. patent application no. 08/047,164 until about April 29, 1997.

10. On November 30, 1994, Mr. Maloney of Digital submitted to the PTO a response to the June 30, 1994 Office Action, along with a request for a 2-month extension of time to reply to the Office Action. However, no change of address or substitute power of attorney was filed. Furthermore, Kenyon & Kenyon did not receive a copy of the response and the request for an extension time filed on November 30, 1994, until on or about May 13, 1997.

11. In response to Mr. Maloney's submission dated November 30, 1994, the PTO issued an Advisory Action dated December 22, 1994, which was sent to Kenyon & Kenyon.

12. On February 1, 1995, the PTO issued a Notice of Abandonment for the above-identified application, which Notice was sent to Kenyon & Kenyon.

13. Kenyon & Kenyon's docketing department never forwarded the Advisory Action or the subsequent Notice of Abandonment to me, and I never forwarded either of these documents to Digital.

14. Because Kenyon & Kenyon's docketing department believed that Digital had assumed all responsibility for the prosecution of the application and was aware of the actions from the PTO, it did not forward the Advisory Action or the subsequent Notice of Abandonment to Digital, and Digital never received the Advisory Action and the Notice of Abandonment. Kenyon & Kenyon did not forward the Advisory Action and the Notice of Abandonment because the notation on the file cover stated "Client Will Handle" and the docketing department personnel did not know that a change of correspondence address and a substitute power of attorney had not been filed by Digital.

15. On or about April 29, 1997, I received a telephone inquiry from Joyce Lange regarding the status of U.S. patent application no. 08/047,164.

16. In response to Joyce Lange's inquiry, I immediately checked Kenyon & Kenyon's computer database and discovered that the PTO had issued the Notice of Abandonment dated February 1, 1995 for patent application no. 08/047,164.

17. On or about April 29, 1997, I notified Joyce Lange that the Advisory Action dated December 22, 1994, as well as the Notice of Abandonment

dated February 1, 1995, had been issued by the PTO in connection with U.S. patent application no. 08/047,164.

18. On or about May 13, 1997, Joyce Lange requested that we proceed with the preparation of a Petition to Revive the abandoned U.S. patent application no. 08/047,164, which request is confirmed in her letter dated May 13, 1997.

19. Within a few days after I received Joyce Lange's letter dated May 13, 1997, I requested Jong H. Lee, an attorney at Kenyon & Kenyon, to prepare the Petition to Revive the abandoned U.S. patent application no. 08/047,164, as well as accompanying documents required under the rules.

20. I never received instructions from either Digital or Kenyon & Kenyon attorneys to abandon U.S. patent application no. 08/047,164, and I believe that this application was unintentionally abandoned through inadvertence, based upon assumptions as to what Kenyon & Kenyon was required to do and what Digital was doing as a consequence of Digital's communications to Kenyon & Kenyon.

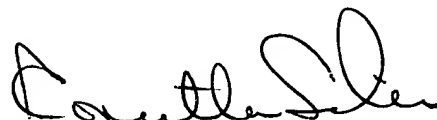
I declare under penalty of perjury that the foregoing is true and correct to  
the best of my knowledge and belief.

Executed on May 14, 1998.

  
Joan E Federici

State of New York    )  
                                  ) ss:  
County of New York)

Sworn to before me on May 14, 1998,

  
Notary Public's Signature

192348

**CONCETTA SILER**  
**Notary Public, State of New York**  
**No. 01SI4619741**  
**Qualified in Queens County**  
**Commission Expires Feb. 28, 2000**





Kenyon's docket department was to send all Office Actions from the PTO concerning Digital's U.S. patent applications to Ms. Joanne Federici, a paralegal at Kenyon & Kenyon; b) Ms. Federici was to report the received Office Actions to Digital; c) I was to forward the reported Office Action to the Digital attorney assigned to handle the application; d) upon obtaining the Digital attorney's approval to proceed with preparation and filing of a response to the Office Action, I was to notify Ms. Federici of this approval; and e) upon receipt of Digital's authorization to proceed with preparation and filing of a response to the Office Action, Ms. Federici was to send the application file to the Kenyon & Kenyon attorney responsible for preparing and filing the response.

5. A final Office Action (dated June 30, 1994) on U.S. patent application no. 08/047,164 was received by Kenyon & Kenyon on July 5, 1994, and Ms. Federici reported this Office Action to Digital in a letter dated July 15, 1994, and addressed to "Dennis G. Maloney, Esq., c/o Ms. Joyce Lange" of Digital. At this time, Mr. Maloney was the in-house attorney at Digital responsible for handling U.S. patent application no. 08/047,164. To the best of my knowledge, Mr. Maloney left Digital in early 1997.

6. In a letter dated September 7, 1994, Mr. Maloney advised Ms. Federici that Digital would directly handle the prosecution of the above-identified application, and that Digital would file a change of address form in the PTO.

7. On November 30, 1994, Mr. Maloney of Digital submitted to the PTO a response to the June 30, 1994 Office Action, along with a request for a 2-month extension of time to reply to the Office Action. However, no change of correspondence address was made at this time or at any subsequent time, and the need to file a notice of change of correspondence address was never docketed, as evidenced by the absence of any such docket entry in the docket history report. (See Exhibit A, row "A"). I cannot explain why this occurred.

8. With respect to U.S. patent application no. 08/047,164, identified internally at Digital by reference notation "PD90-0282CONT1," Digital's computerized docket database includes an "APPEAL/CONTINUATION" due-date entry for December 30, 1994. (See Exhibit A, row "A").

9. Mr. David Suhl is listed as the "Docket Attorney" for the "APPEAL/CONTINUATION" due-date entry for December 30, 1994. (See Exhibit A, row "A"). Around December of 1994, Mr. Suhl was a law student working at Digital's patent law group as a "patent associate."

10. Although Mr. Suhl is listed as the "Docket Attorney" for the "APPEAL/CONTINUATION" due-date entry for December 30, 1994, Mr. Maloney was responsible for making the decision regarding the course of action in response to the "APPEAL/CONTINUATION" due-date entry.

11. Digital's computerized docket database also indicates that the "APPEAL/CONTINUATION" due-date entry for December 30, 1994 was entered into the database on July 21, 1994 (See Exhibit B, "DATE\_ENTERED" notation), and that the "APPEAL/CONTINUATION" due-date entry was "closed" (see Exhibit B, "C" notation next to "Action Status" entry) on June 25, 1996.

12. Subsequent to Mr. Maloney's letter dated September 7, 1994 to Ms. Federici of Kenyon & Kenyon, there was no further communication between Digital and Kenyon & Kenyon concerning U.S. patent application no. 08/047,164 until about April 29, 1997.

13. On or about April 29, 1997, as part of a routine docket check, I telephoned Ms. Federici of Kenyon & Kenyon regarding U.S. patent application no. 08/047,164. In response to my inquiry, Ms. Federici checked Kenyon & Kenyon's computer database for information concerning U.S. patent application no. 08/047,164 and informed me that an Advisory Action dated December 22, 1994, as well as a Notice of Abandonment dated February 1, 1995, had been issued by the PTO.

14. On or about May 13, 1997, after discussions with attorneys at Digital's patent law group, I requested Ms. Federici to have Kenyon & Kenyon prepare a Petition to Revive the abandoned U.S. patent application no. 08/047,164, which request is reflected in my letter dated May 13, 1997.

15. From May 13, 1997, until June 26, 1997, I was in contact with Jong H. Lee, an attorney at Kenyon & Kenyon, for the purpose of preparing the Petition to Revive the abandoned U.S. patent application no. 08/047,164 as well as the accompanying documents required under the rules.

16. Digital did not receive the Advisory Action issued by the PTO on December 22, 1994, and Digital did not have knowledge of the Advisory Action until about April 29, 1997.

17. With respect to U.S. patent application no. 08/047,164 (Digital reference notation "PD90-0282CONT1"), Digital's computerized docket database includes an "APPEAL/BRIEF" due-date entry for September 30, 1994, in response to an Office Action dated December 22, 1994. (See Exhibit A, row "A").

18. Digital's computerized docket database also indicates that the "APPEAL/BRIEF" due-date entry for September 30, 1994 was entered into the database on April 29, 1997 (See Exhibit C, "DATE\_ENTERED" notation), and that the "APPEAL/BRIEF" due-date entry has "open" status (see Exhibit C, "O" notation next to "Action Status" entry).

19. Digital did not receive the Notice of Abandonment issued by the PTO on February 1, 1995, and Digital did not have knowledge of the Notice of Abandonment until about April 29, 1997.

20. I never received instructions from anyone to abandon U.S. patent application no. 08/047,164, and to the best of my knowledge, no instruction was given by anyone to abandon U.S. patent application no. 08/047,164.

21. Neither Mr. Maloney nor anyone else intended to abandon U.S. patent application no. 08/047,164, and I believe that this application was unintentionally and inadvertently abandoned. Had U.S. patent application no. 08/047,164 been abandoned intentionally, the normal docketing procedure would have dictated that the "APPEAL/CONTINUATION" due-date entry be "closed" on or about December 30, 1994, rather than approximately 18 months later, on June 25, 1996.

22. The "APPEAL/CONTINUATION" due-date entry was "closed" on June 25, 1996 because no action had been taken in response to this due-date entry for approximately 18 months after the due-date, and the normal docketing procedure would have dictated "closing" of any due date for which no response had been made for approximately 18 months after the due date.

23. When the "APPEAL/ CONTINUATION" due-date entry was "closed" on June 25, 1996, no one at Digital's patent law group had any knowledge that U.S. patent application no. 08/047,164 had been abandoned.



05-Mar-1998

D E C I a w  
DOCKET HISTORY REPORT

16:56:04

Row A

Matter No: PD90-0282CONT1 Ctry: US Resp Attorney: MALONEY, DENIS Application Attorney: O/S  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
02-Oct-1993	OFFICE ACTION	C	02-Jul-1993	04-Oct-1993	PACIULAN	KENYON1
08-Mar-1994	OFFICE ACTION	C	08-Dec-1993	08-Apr-1994	MALONEY	KENYON1
30-Sep-1994	APPEAL/BRIEF	O	22-Dec-1994		PAPPAS	KENYON1
30-Nov-1994	FINAL REJECTION	C	30-Jun-1994	30-Nov-1994	SUHL	PLG
30-Dec-1994	APPEAL/CONTINUATION	C	30-Jun-1994		SUHL	PLG
29-Jun-1997	MISCELLANEOUS	O	29-Apr-1997		PAPPAS	PLG
09-Feb-1998	MISCELLANEOUS	O	09-Dec-1997		PAPPAS	KENYON1

Matter No: PD90-0282 Ctry: EPO Resp Attorney: PACIULAN, DICK Application Attorney:  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
17-Jan-1997	OFFICE ACTION	C	17-Oct-1996	11-Dec-1996	SUHL	PLG
17-Mar-1997	OFFICE ACTION	C	03-Feb-1997	25-Feb-1997	SUHL	PLG
02-Dec-1997	POST GRANT TRANSACTIONS	C	04-Sep-1997	01-Dec-1997	NATH	PLG

Matter No: PD90-0282 Ctry: US Resp Attorney: MALONEY, DENIS Application Attorney: O/S  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
14-Mar-1993	FINAL REJECTION	C	14-Dec-1992	16-Feb-1993	PACIULAN	KENYON1
14-Mar-1993	APPEAL/CONTINUATION	C	02-Mar-1993	12-Apr-1993	PACIULAN	KENYON1

DOCKET REPORT ENTRY - PD90-0282CONT1  
04/16/98 9:25:57 AM

Action: APP/CON  
Action Dated: 30-Jun-1994  
Action Name: APPEAL/CONTINUATION  
Action Status: C  
CHANGED\_ID: DEVLIN  
Country Code: US  
Country Name: UNITED STATES  
DATE\_CHANGED: 25-Jun-1996  
DATE\_ENTERED: 21-Jul-1994  
Docket Attorney: SUHL  
Docket Firm: 9999999  
Due Date: 30-Dec-1994  
ENTERED\_ID: WILLETT  
Matter ID: PD90-0282CONT1US  
Matter Number: PD90-0282CONT1  
Remarks: 6 MONTH DATE/NO EXTENSION  
TIME\_CHANGED: 145743  
TIME\_ENTERED: 150117



Report  
4/15/98 3:43:12 PM

Action: APP/BR  
Action Dated: 22-Dec-1994  
Action Name: APPEAL/BRIEF  
Action Status: 0  
CHANGED\_ID: DEVLIN  
Country Code: US  
Country Name: UNITED STATES  
DATE\_CHANGED: 24-Mar-1998  
DATE\_ENTERED: 29-Apr-1997  
Docket Attorney: O/S  
Docket Firm: 32  
Due Date: 30-Sep-1994  
ENTERED\_ID: DEVLIN  
Matter ID: PD90-0282CONT1US  
Matter Number: PD90-0282CONT1  
Remarks: KENYON & KENYON IS HANDLING CASE WILL PETITION FOR TO  
REVIVE CASE (PAPPAS)  
TIME\_CHANGED: 95854  
TIME\_ENTERED: 143602  
UID: 10447



5. A final Office Action (dated June 30, 1994) on U.S. patent application no. 08/047,164 was received by Kenyon & Kenyon on July 5, 1994, and Ms. Federici reported this Office Action to Digital in a letter dated July 15, 1994, and addressed to "Dennis G. Maloney, Esq., c/o Ms. Joyce Lange" of Digital.

6. In a letter dated September 7, 1994, Mr. Maloney advised Ms. Federici that Digital would directly handle the prosecution of U.S. patent application no. 08/047,164, and that Digital would file a change of address form in the PTO.

7. With respect to U.S. patent application no. 08/047,164, identified internally at Digital by reference notation "PD90-0282CONT1," Digital's computerized docket database includes a "FINAL REJECTION" due-date entry for November 30, 1994. (See Exhibit A, row "A").

8. Although I am listed as the "Docket Attorney" for the "FINAL REJECTION" due-date entry for November 30, 1994 (See Exhibit A, row "A"), Mr. Maloney was responsible for making the decision regarding the course of action in response to the "FINAL REJECTION" due-date entry.

9. Digital's computerized docket database indicates that the "FINAL REJECTION" due-date entry for November 30, 1994 was entered into the database on July 21, 1994 (see Exhibit B, "DATE\_ENTERED" notation), and that the "FINAL REJECTION" due-date entry was "closed" (see Exhibit B, "C" notation next to "Action Status" entry) on December 2, 1994.

10. On November 30, 1994, Mr. Maloney submitted to the PTO a response to the June 30, 1994 Office Action, along with a request for a 2-month extension of time to reply to the Office Action. However, no change of correspondence address was made at this time or at any subsequent time, and the need to file a notice of change of correspondence address was never docketed, as evidenced by the absence of any such docket entry in the docket history report. (See Exhibit A, row "A").

11. With respect to U.S. patent application no. 08/047,164 ("PD90-0282CONT1"), Digital's computerized docket database includes an "APPEAL/CONTINUATION" due-date entry for December 30, 1994. (See Exhibit A, row "A").

12. Although I am listed as the "Docket Attorney" for the "APPEAL/CONTINUATION" due-date entry for December 30, 1994 (See Exhibit A, row "A"), Mr. Maloney was responsible for making the decision regarding the course of action in response to the "APPEAL/CONTINUATION" due-date entry.

13. Digital's computerized docket database indicates that the "APPEAL/CONTINUATION" due-date entry for December 30, 1994 was entered into the database on July 21, 1994 (see Exhibit C, "DATE\_ENTERED" notation), and that the "APPEAL/CONTINUATION" due-date entry was "closed" (see Exhibit C, "C" notation next to "Action Status" entry) on June 25, 1996.

14. Subsequent to Mr. Maloney's letter dated September 7, 1994 to Ms. Federici of Kenyon & Kenyon, neither I nor Mr. Maloney had any communication with Kenyon & Kenyon concerning U.S. patent application no. 08/047,164.

15. Mr. Maloney inadvertently and unintentionally overlooked the "APPEAL/CONTINUATION" due-date entry for December 30, 1994, at least in part because the Advisory Action dated December 22, 1994 was never received by Digital.

16. Mr. Maloney never intended, and never instructed anyone, to abandon U.S. patent application no. 08/047,164. Had Mr. Maloney intentionally abandoned U.S. patent application no. 08/047,164, I believe that the "APPEAL/CONTINUATION" due-date entry would have been "closed" on or about December 30, 1994, rather than approximately 18 months later, on June 25, 1996.

17. The "APPEAL/CONTINUATION" due-date entry was "closed" on June 25, 1996 because no action had been taken in response to this due-date entry for approximately 18 months after the due-date.

18. When the "APPEAL/ CONTINUATION" due-date entry was "closed" on June 25, 1996, no one at Digital's patent law group had any knowledge that U.S. patent application no. 08/047,164 had become abandoned.

19. Mr. Maloney left Digital in early 1997.



05-Mar-1998

D E C I a w  
DOCKET HISTORY REPORT

16:56:04

Row A

Matter No: PD90-0282CONT1 Ctry: US Resp Attorney: MALONEY, DENIS Application Attorney: O/S  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
02-Oct-1993	OFFICE ACTION	C	02-Jul-1993	04-Oct-1993	PACIULAN	KENYONI
08-Mar-1994	OFFICE ACTION	C	08-Dec-1993	08-Apr-1994	MALONEY	KENYONI
30-Sep-1994	APPEAL/BRIEF	O	22-Dec-1994		PAPPAS	KENYONI
30-Nov-1994	FINAL REJECTION	C	30-Jun-1994	30-Nov-1994	SUHL	PLG
30-Dec-1994	APPEAL/CONTINUATION	C	30-Jun-1994		SUHL	PLG
29-Jun-1997	MISCELLANEOUS	O	29-Apr-1997		PAPPAS	PLG
09-Feb-1998	MISCELLANEOUS	O	09-Dec-1997		PAPPAS	KENYONI

Matter No: PD90-0282 Ctry: EPO Resp Attorney: PACIULAN, DICK Application Attorney:  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
17-Jan-1997	OFFICE ACTION	C	17-Oct-1996	11-Dec-1996	SUHL	PLG
17-Mar-1997	OFFICE ACTION	C	03-Feb-1997	25-Feb-1997	SUHL	PLG
02-Dec-1997	POST GRANT TRANSACTIONS	C	04-Sep-1997	01-Dec-1997	NATH	PLG

Matter No: PD90-0282 Ctry: US Resp Attorney: MALONEY, DENIS Application Attorney: O/S  
Title: HIGH SPEED BUS SYSTEM

Due Date	Action	Status	Action Dated	Response Mailed	Docket Attorney	Docket Firm
14-Mar-1993	FINAL REJECTION	C	14-Dec-1992	16-Feb-1993	PACIULAN	KENYONI
14-Mar-1993	APPEAL/CONTINUATION	C	02-Mar-1993	12-Apr-1993	PACIULAN	KENYONI

DOCKET REPORT ENTRY - PD90-0282CONT1  
04/16/98 9:25:57 AM

Action: OA/FINAL  
Action Dated: 30-Jun-1994  
Action Name: FINAL REJECTION  
Action Status: C  
CHANGED\_ID: SKRZYNNIA  
Country Code: US  
Country Name: UNITED STATES  
DATE\_CHANGED: 02-Dec-1994  
DATE\_ENTERED: 21-Jul-1994  
Docket Attorney: SUHL  
Docket Firm: 9999999  
Due Date: 30-Nov-1994  
ENTERED\_ID: WILLETTTE  
Matter ID: PD90-0282CONT1US  
Matter Number: PD90-0282CONT1  
Response Mailed Date: 30-Nov-1994  
TIME\_CHANGED: 94953  
TIME\_ENTERED: 150052



**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

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Dipl.-Phys. Michael Resch

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Telefax 0 89 - 2 60 78 96

Patents · Trademarks · Designs  
Computer Program Protection

DIGITAL EQUIPMENT CORPORATION  
Ram Nath  
International Patent Consultant  
Patent Law Group  
111 Powdermill Road  
Maynard, MA 01754-1499  
U.S.A.

February 20, 1998

European Patent Application No. 91110755.5  
"High speed bus system"  
DIGITAL EQUIPMENT CORPORATION  
Your Ref.: PD90-0282  
Our File: DEC 154 EP B/SE

FILING

Dear Ram,

According to our letter of December 16, 1997 we have filed the German and French translations of the claims and paid the fees for grant and printing in time.

Please find enclosed a copy of our \*letter to the EPO together with the translations.

For our services we take the liberty of enclosing our \*debit note.

Yours sincerely,

  
Jürgen Betten

RECEIVED  
LAW DEPT. PLG

FEB 25 1998

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

\*Enclosures:  
letter to the EPO with enclosures  
debit note

Copy

**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

Patents · Trademarks · Designs  
Computer Program Protection

Dipl.-Ing. Jürgen Betten  
Dipl.-Phys. Michael Resch

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☎ 0 89 - 2 60 30 88  
Telefax 0 89 - 2 60 73 66

European Patent Office

80298 Munich

February 20, 1998

European Patent Application No. 91110755.5

"High speed bus system"

DIGITAL EQUIPMENT CORPORATION

Our File: DEC 154 EP B/SE

**CLAIMS AND FEES FOR GRANTING**

In response to the Communication under **Rule 51(6) EPC**

Enclosed please find a \*German and French translation of the claims.

The following fees will be paid by collective remittance:

Fee for grant	DM 1400,--
Fee for printing	DM 440,--
Fee for claims	DM --,--
Ref. 058	<u>DM 10,--</u>
	DM 1850,--
	=====

  
Jürgen Betten

**\*Enclosures:**

- German claims (2)
- French claims (2)

# cabinet malémont

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F 75116 PARIS  
Téléphone : 01 47 04 68 68  
Facsimilé : 01 47 27 83 40  
Facsimilé : 01 47 04 68 99

## Robert CHAUCHARD

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PRESIDENT  
MANDATAIRE EN BREVETS EUROPEENS  
EUROPEAN PATENT ATTORNEY

## Claude CHAMEROY

Ingenieur E.S.M.E. Diplôme C.E.I.P.I.  
ADMINISTRATEUR  
MANDATAIRE EN BREVETS EUROPEENS  
EUROPEAN PATENT ATTORNEY

## Robert LEMOINE

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EUROPEAN PATENT ATTORNEY

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Diplôme C.E.I.P.I. BREVETS  
ADMINISTRATEUR  
Conseil en propriété industrielle (marques)

CONSEILS EN PROPRIÉTÉ INDUSTRIELLE  
MEMBRES DE LA F.I.C.P.I.  
MANDATAIRES EN MARQUES COMMUNAUTAIRES  
COMMUNITY TRADEMARK ATTORNEYS

## Isabelle GUDARD

Diplômée I.S.I.T.

## Bernadette ROUAUD

Diplômée I.S.I.T.

## Robert J. LECIGNE

SECRETAIRE GENERAL

Messrs BETTEN & RESCH *File*  
Reichenbachstrasse 19  
D - 80469 MÜNCHEN

V/réf. DEC 154 EP/ N/réf. 7511V  
FR B/SE

Paris, le February 2, 1998

European patent application No. 91 110 755.5  
in the name of DIGITAL EQUIPMENT CORPORATION  
(PD 90-0282 FR)

Dear Sirs,

This is further to our acknowledgment of December 23, 1997.

As requested, please find enclosed five copies of the claims translated into French of the European patent application in reference for filing at the European Patent Office.

The French complete translation will be sent in due time to DIGITAL EQUIPMENT CORPORATION with our debit note for our services.

Very Truly Yours,  
CABINET MALEMONT  
Claude Chameroy

RECEIVED  
LAW DEPT-PLG

FEB 09 1998

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

cc: DIGITAL EQUIPMENT CORPORATION

CC/NS

Encl.

Bureau de Munich  
Thürschstrasse 38  
D 8000 MÜNCHEN 22, RFA  
Tél. (089) 22 97 68

Versailles  
Sage social  
Reception sur rendez-vous  
53 bis Avenue Fourcault-de-Paviot  
78000 VERSAILLES  
Téléphone 01 39 54 54 24

BREVETS, MARQUES ET MODELES, RECHERCHES D'ANTERIORITE, CONSULTATIONS, CONTRATS DE  
CESSION OU DE LICENCES, TRANSFERT DE TECHNOLOGIE, LITIGES ET PROCES EN CONTREFAÇON

Société anonyme à objet social de Conseil en Propriété Industrielle au capital de 720 000 frs - TVA : FR 47 542 010 533 - RCS Versailles B 542 010 533

# haagsch octrooibureau

patents and trademarks  
p.o. box 97702 - 2509 gc the hague - netherlands

drs j.j.w. borleffs  
ir g.e. bakker  
mr ir h.p. bienfait  
drs f.g. blauw  
mr ing w. volker  
european patent attorneys

trademarks  
c.m. hollanders  
g.j. van hulst  
mr e.e. van oosterom  
mr n.g. sieh  
o.m. westen-verheydt

legal department  
mr ir h.th. van asselt

patent searches  
ing a.b. holleboom

Digital Equipment Corporation  
Patent Department

111 Powdermill Road

01754 Maynard Massachusetts  
U.S.A.

*File*

January 22, 1998

Ref: 62724

*in*

Re.: Translation Eur. patent/application Nr. 0464708  
in the Netherlands-PD 90-0282 NL  
DIGITAL EQUIPMENT CORPORATION

Dear Sirs,

Please find enclosed 2 copies of the sworn translation filed with the Dutch Patent Office, together with our debit note.

Maximum duration after grant, 20 years after the filing date.

1. annual fee due after grant at the end of the month of filing  
(in the 5. year after the filing date of the Eur. patent application).  
Costs Dglds. 625,-

According to your general instructions for payment of annual fees we marked our file that this will be done directly by you.

Very truly yours  
HAAGSCH OCTROOIBUREAU

Encl.

RECEIVED  
LAW DEPT. P.I.G

JAN 30 1998

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

P.S. Filing of an undersigned power of attorney is no longer necessary.

**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

Dipl.-Ing. Jürgen Betten  
Dipl.-Phys. Michael Resch

Reichenbachstrasse 19  
D-80469 München  
☎ 0 89 - 2 60 30 88  
Telefax 0 89 - 2 60 78 96

Patents · Trademarks · Designs  
Computer Program Protection

**DIGITAL EQUIPMENT CORPORATION**

Ram Nath  
International Patent Consultant  
Patent Law Group  
111 Powdermill Road  
Maynard, MA 01754-1499  
U.S.A.

① PTs entry  
② file

December 16, 1997

European Patent Application No. 91110755.5  
"High speed bus system"  
DIGITAL EQUIPMENT CORPORATION  
Your Ref.: PD90-0282  
Our File: DEC 154 EP B/SE

**INTENTION TO GRANT A PATENT**

Dear Ram,

We have the pleasure of advising you that according to the enclosed \*communication the European Patent Office will grant a European patent.

The text corresponds to that of the advance notice you received with our letter of September 4, 1997.

It is now necessary to pay the fees for grant and printing and to file the German and French translation of claims by

March 15, 1998.

We will do so according to your instructions of December 1, 1997.

The patent will be effective in the following countries:

RECEIVED  
LAW DEPT-PLG

DE FR GB IT NL

JAN 0 6 1998

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

To validate the patent in these countries a translation must be filed in

DE FR IT NL.

We will take care of the validation of the patent and forward the necessary documents to the national associates in accordance with your instructions.

Yours sincerely,

  
Jürgen Betten

\*Enclosure

Our Ref: MRJ/MJ/M36121  
Your Ref: PD 90-0282 GB  
Date: 5 December, 1997

**Kilburn  
& Strode**

European Patent Attorneys  
Chartered Patent Attorneys  
Trade Mark Attorneys

Patents · Trade Marks  
Designs · Copyright

30 John Street  
London WC1N 2DD  
Telephone 0171-242 8291  
Fax 0171-242 6630  
International +44171-  
Telex 23749

Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts 01754-1418  
USA

① Pts entry  
② File

Dear Sirs,

Re: **European Patent Application No. 91110755.5**  
**European Publication No. 0464708**  
**Patentee: DIGITAL EQUIPMENT CORPORATION**

Thank you for your letter dated 1 December 1997 enclosing details of the above mentioned European Patent Application.

We confirm we have now added this case to our records and taken steps to record ourselves as the address for service in respect of the United Kingdom part of this patent.

We look forward to receiving a copy of the Decision to grant this application so that we may calculate when the first annuity will fall due in the United Kingdom.

Our debit note will follow shortly.

Yours faithfully,

KILBURN & STRODE

RECEIVED  
LAW DEPT-PLG

DEC 10 1997

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

Partners:  
K D N Kearney  
R. Ashmead  
N R Jennings  
D C Rice  
A G Sheard  
M N Mages  
P Hale  
P W Chapman

Consultants:  
A J M Robinson  
Alison C Roberts

Assisted by:  
Kirstina A J C Smith  
Kathleen D Harris\*  
J A W Miller  
G A Roberts  
M P White  
\* etc

Partnership Secretary:  
B C Shaw

Records:  
W D D Green

Accounts:  
B E Nicholls

**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

Dipl.-Ing. Jürgen Betten  
Dipl.-Phys. Michael Resch

Reichenbachstrasse 19  
D-80469 München  
☎ 0 89 - 2 60 30 88  
Telefax 0 89 - 2 60 78 96

Patents · Trademarks · Designs  
Computer Program Protection

DIGITAL EQUIPMENT CORPORATION  
Ram Nath  
Patent Associate  
111 Powdermill Road  
Maynard, MA 01754-1418  
U.S.A.

*File*

*inv.*

December 2, 1997

European Patent Application No. 91110755.5  
"High speed bus system"  
DIGITAL EQUIPMENT CORPORATION  
Your Ref.: PD90-0282  
Our File: DEC 154 EP B/SE

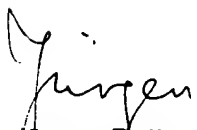
**APPROVAL**

Dear Ram,

according to our letter of September 4, 1997 we have filed the enclosed \*approval  
to the text proposed by the Examining Division.

For our services we take the liberty of enclosing our \*debit note.

Yours sincerely,

  
Jürgen Betten

\*Enclosures  
approval  
debit note





A handwritten signature, possibly "JF", located in the top right corner of the page.

Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1412

December 1, 1997

**VIA FACSIMILE**

Mr. Jürgen Betten  
Betten & Resch  
Patentanwalte  
Reichenbachstrasse 19  
(Gartnerplatz)  
D-80469 München  
GERMANY

RE: Notice of Intention to grant a Patent  
European Patent Application No.: 91110755.5  
Your Reference No.: DEC 154 EP B/SE  
Our Reference No.: PD 90-0282 EPO

Dear Jürgen:

We respond to your letter of September 4, 1997 and the communication under Rule 51 (4). We approve the text of the application on the basis of documents attached to the communication.

Please note that we wish to proceed with the national stage only in the following five (5) countries: **Germany, France, Italy, the Netherlands, and the United Kingdom.** Please see the attached listing of our selected national associates.

This letter authorizes you to prepare the German translation of the granted EPO claims and text and to take all steps necessary to effect the granted patent in Germany. The FRENCH TRANSLATION of the EPO claims will be prepared by our French associate and sent to you in good time.

In due time, please forward to the selected representatives a copy of any necessary forthcoming EPO communications, e.g., EPO Form 2006, and a copy of the final text as intended for grant only to those associates who must prepare their own translations.

Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

Mr. Jürgen Betten  
Betten & Resch

- Page 2 -

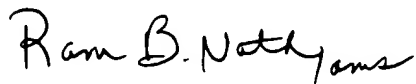
December 1, 1997  
PD 90-0282 EP

All selected national representatives are asked to send their debit notes or invoices directly to us and to submit to us the particulars of the respective national patents.

By copy of this letter, all our local national associates are informed of this procedure.

If you have any concerns with the transition to the National phase, please notify us immediately.

Yours very truly,



Ram B. Nath  
International Patent Consultant  
Patent Law Group

**PS PLEASE SEND US BY FACSIMILE THE FORM 2006 FORM AS SOON AS  
RECEIVED SO THAT WE WILL KNOW THE DATE OF MENTION OF  
GRANT. THANK YOU.**

RBN:rmj

Enclosures: Listing of National Associates

cc: Selected Local National Associates  
(Check address list)  
Joyce Lange/CPI  
Ann Skrzyniarz

**EUROPEAN PATENT APPLICATION NO.: 91110755.5**  
**DIGITAL REFERENCE NO.: PD 90-0282 EPO**

**LISTING OF NATIONAL ASSOCIATES**

1. **DE GERMANY**

Same as main EP Associate

**Prepares GERMAN translation of:**

  1. EPO claims
  2. German national text
  
2. **FR FRANCE**

Mr. Robert Chauchard  
Cabinet Malemont  
42, Avenue du President Wilson  
75116 Paris  
FRANCE

**Prepares FRENCH translation of:**

  1. EPO claims
  2. French national text
  
3. **IT ITALY**

Studio TORTA Societa Semplice  
Via Viotta 9  
10121 Torino  
ITALY

**Prepares ITALIAN translation of:**

  1. Italian national text
  
4. **NL NETHERLANDS**

Mr. Hendrik J.G. Lips  
Haagsch Octrooibureau  
P.O. Box 97702  
2509GC The Hague  
NETHERLANDS

**Prepares DUTCH translation of:**

  1. Dutch national text
  
5. **GB UNITED KINGDOM**

Mr. Michael Maggs  
Kilburn & Strode  
30 John Street  
London WC1N 2DD  
UNITED KINGDOM



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts U.S.A.  
01754-1418

December 1, 1997

**VIA DHL COURIER**

Mr. Robert Chauchard  
Cabinet Malemont  
42, Avenue du President Wilson  
75116 Paris  
FRANCE

RE: National Phase in Designated EPO Countries  
European Patent Application No.: 91110755.5  
Our Reference No.: PD 90-0282 FR

Dear Mr. Chauchard:

Please complete the national phase requirements in your country for the above-referenced granted EPC application.

Enclosed please find:

1. A copy of the letter to the main EP associate containing information regarding fees, invoices, and translation instructions (Note: If your firm is preparing a common translation, kindly distribute the translation as indicated in a timely manner.);
2. Listing of National Associates;
3. Cover Sheet of the International Publication;
4. Communication under EPC Rule 51 (4);
5. Power of Attorney

Please ensure that you complete filing of the approved text in your national patent office in a timely manner. One copy of the national translation filed by you should accompany your SINGLE invoice, which should be in the Digital format.

Mr. Robert Chauchard  
Cabinet Malemont

- Page 2 -

December 1, 1997  
PD 90-0282 FR

Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

Please note that we DO NOT require a facsimile acknowledgment of the receipt of this communication.

If you have any questions regarding your role in this national phase of the granted EPO application, please advise.

Yours very truly,

A handwritten signature in cursive script that reads "Ram B. Nath". There is a small mark at the end of the signature that looks like a stylized "n" or "m".

Ram B. Nath  
International Patent Consultant  
Patent Law Group

RBN:rmj

Enclosures

cc: Betten & Resch  
Joyce Lange/CPI  
Ann Skrzyniarz



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-0001

December 1, 1997

**VIA DHL COURIER**

Mr. Michael Maggs  
Kilburn & Strode  
30 John Street  
London WC1N 2DD  
UNITED KINGDOM

RE: National Phase in Designated EPO Countries  
European Patent Application No.: 91110755.5  
Our Reference No.: PD 90-0282 GB

Dear Mr. Maggs:

Please complete the national phase requirements in your country for the above-referenced granted EPC application.

Enclosed please find:

1. A copy of the letter to the main EP associate containing information regarding fees, invoices, and translation instructions (Note: If your firm is preparing a common translation, kindly distribute the translation as indicated in a timely manner.);
2. Listing of National Associates;
3. Cover Sheet of the International Publication;
4. Communication under EPC Rule 51 (4);

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Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

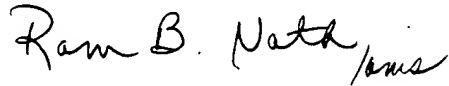
Mr. Michael Maggs  
Kilburn & Strode

- Page 2 -

December 1, 1997  
PD 90-0282 GB

If you have any questions regarding your role in this national phase of the granted EPO application, please advise.

Yours very truly,

A handwritten signature in cursive script that reads "Ram B. Nath" followed by a small flourish.

Ram B. Nath  
International Patent Consultant  
Patent Law Group

RBN:rmj

Enclosures

cc: Betten & Resch  
Joyce Lange/CPI  
Ann Skrzyniarz



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1414

December 1, 1997

**VIA DHL COURIER**

Studio TORTA Societa Semplice  
Via Viotta 9  
10121 Torino  
ITALY

RE: National Phase in Designated EPO Countries  
European Patent Application No.: 91110755.5  
Our Reference No.: PD 90-0282 IT

Dear Sirs:

Please complete the national phase requirements in your country for the above-referenced granted EPC application.

Enclosed please find:

1. A copy of the letter to the main EP associate containing information regarding fees, invoices, and translation instructions (Note: If your firm is preparing a common translation, kindly distribute the translation as indicated in a timely manner.);
2. Listing of National Associates;
3. Cover Sheet of the International Publication;
4. Communication under EPC Rule 51 (4);
5. Power of Attorney

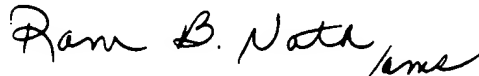
Please ensure that you complete filing of the approved text in your national patent office in a timely manner. One copy of the national translation filed by you should accompany your SINGLE invoice, which should be in the Digital format.



Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

If you have any questions regarding your role in this national phase of the granted EPO application, please advise.

Yours very truly,

A handwritten signature in cursive script that reads "Ram B. Nath" followed by a small flourish.

Ram B. Nath  
International Patent Consultant  
Patent Law Group

RBN:rmj

Enclosures

cc: Betten & Resch  
Joyce Lange/CPI  
Ann Skrzyniarz



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1115

December 1, 1997

**VIA DHL COURIER**

Mr. Hendrik J.G. Lips  
Haagsch Octrooibureau  
P.O. Box 97702  
2509GC The Hague  
THE NETHERLANDS

RE: National Phase in Designated EPO Countries  
European Patent Application No.: 91110755.5  
Our Reference No.: PD 90-0282 NL

Dear Mr. Lips:

Please complete the national phase requirements in your country for the above-referenced granted EPC application.

Enclosed please find:

1. A copy of the letter to the main EP associate containing information regarding fees, invoices, and translation instructions (Note: If your firm is preparing a common translation, kindly distribute the translation as indicated in a timely manner.);
2. Listing of National Associates;
3. Cover Sheet of the International Publication;
4. Communication under EPC Rule 51 (4);

Please ensure that you complete filing of the approved text in your national patent office in a timely manner. **One** copy of the national translation filed by you should accompany your SINGLE invoice, which should be in the Digital format.

Annuity payments: All annuity payments at grant of this application will be made by DIGITAL through CPI. All annuity payments for national patents after grant will also be made by CPI for DIGITAL.

Mr. Hendrik J.G. Lips  
Haagsch Octrooibureau

- Page 2 -

December 1, 1997  
PD 90-0282 NL

If you have any questions regarding your role in this national phase of the granted EPO application, please advise.

Yours very truly,

*Ram B. Nath* *ams*

Ram B. Nath  
International Patent Consultant  
Patent Law Group

RBN:rmj

Enclosures

cc: Betten & Resch  
Joyce Lange/CPI  
Ann Skrzyniarz

To:

GARY

Date:

1-1-9

## POST-GRANT EUROPEAN PATENT

**Action Required**

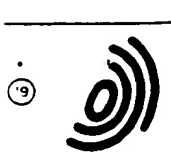
The European Patent Office intends to grant a patent on PD90-0182.  
 ATTACHED PROVIDES MORE APPLICATION DETAILS

There is not much time to complete post-grant procedures. Considering the associated costs, PLG will proceed only with the CIRCLED designated states, unless we hear otherwise from you by 1-30-97.

**\* Marks Earlier Designated States  
 in which patent protection is available**

<u>Country</u>		<u>Translation</u>	<u>File in This Country? Yes or No</u>	<u>Approx. Cost</u>	<u>Apply for Licenses of Right? Yes or No</u>	<u>Apply for Divisional Now? Yes or No</u>
AT	Austria	German	_____	\$ 500	_____	_____
BE	Belgium	Fr. or Dutch	_____	\$ 500	_____	_____
CH	Switzerland/ LI Liechtenstein	Fr. or German or Italian	_____	\$ 500	_____	_____
* DE	Germany	German	✓	\$ 3,000	_____	_____
DK	Denmark	Danish	_____	\$ 2,500	_____	_____
ES	Spain	Spanish	_____	\$ 2,500	_____	_____
* FR	France	French	✓	\$ 3,000	_____	_____
* GB	United Kingdom	(Not Required)	✓	\$ 500	_____	_____
GR	Greece	Greek	_____	\$ 2,500	_____	_____
IE	Ireland	English	_____	\$ 500	_____	_____
* IT	Italy	Italian	✓	\$ 3,000	_____	_____
LU	Luxembourg	Eng. Fr. or Germ.	_____	\$ 500	_____	_____
* NL	Netherlands	Dutch	✓	\$ 2,500	_____	_____
PT	Portugal	Portuguese	_____	\$ 2,500	_____	_____
SE	Sweden	Swedish	_____	\$ 2,500	_____	_____

**Return form with any changes to Ann Skrzyniarz at MSO2-3/F3.**



EUROPEAN PATENT APPLICATION

(21) Application number: 91110755.5

(51) Int. Cl.<sup>5</sup>: G06F 15/16, G06F 13/36

(22) Date of filing: 28.06.91

(30) Priority: 29.06.90 US 546547

(43) Date of publication of application:  
08.01.92 Bulletin 92/02

(94) Designated Contracting States:  
DE FR GB IT NL

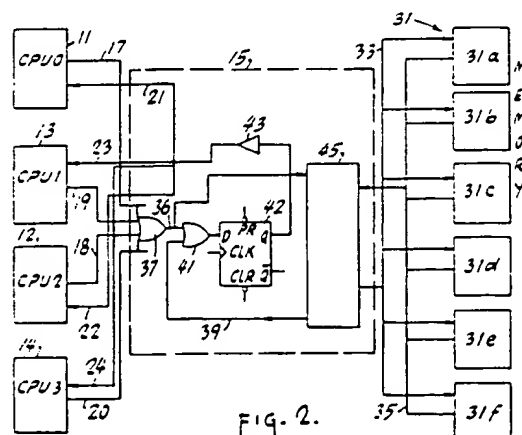
(71) Applicant: **DIGITAL EQUIPMENT CORPORATION**  
111 Powdermill Road  
Maynard Massachusetts 01754-1418(US)

(72) Inventor: **Ramanujan, Ray**  
36 Fox Meadow Road  
Leominster, MA 01453(US)  
Inventor: **Keller, James B.**  
33 Ottawa Road  
Arlington, MA 01775(US)  
Inventor: **Samaras, William A.**  
528 Washington Street  
Haverhill, MA 01830(US)  
Inventor: **DeRosa, John**  
16 Lover's Lane  
Princeton, MA 01541(US)  
Inventor: **Stewart, Robert E.**  
1 No Name Road  
Stow, MA 01775(US)

(74) Representative: **Betten & Resch**  
Reichenbachstrasse 19  
W-8000 München 5(DE)

(54) High speed bus system.

(57) A high speed bus system for use in a shared memory system that allows for the high speed transmissions of commands and data between a number of processors and a memory array of a multi-processor, shared memory system, with the high speed bus system including a central unit and a series of uni-directional buses that connect between the plurality of processors and shared memory, with the central unit including arbitration logic and a series of multiplexers to determine which CPUs are granted access to shared buses, scheduling logic that works with the arbitration logic and multiplexers to determine which CPUs are granted access to the shared buses, and port logic for combining the CPU transmissions and determining if such transmissions are valid.



EP 0 464 708 A1

## Pouvoir.

## Power of Attorney.

ssigné

The undersigned  
DIGITAL EQUIPMENT CORPORATION

111 Powdermill Road  
Maynard, Massachusetts 01754-1499  
U.S.A.

DN

14-1499

pour Mandataire

appoint

Societe de Protection des Inventions  
25, Rue de Ponthieu  
75008D Paris  
FRANCE

lli Raffaele, Cerbaro  
lo Cigno Giovanni.  
Roberto and Revelli  
ide Mark Roll under  
t: 482/BM; 294/BM;  
5/BM respectively).  
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donne pouvoir de pour  
toutes les démarches nécessaires à l'effet

as agent to whom we give power to take all  
the necessary steps for US and in OUR name  
for The National Phase of European  
Patent Application No.: 91304534.0

TITLE: SYSTEM AND METHOD FOR CONSISTENT  
TIMESTAMPING IN DISTRIBUTED COMPUTER DATABASES

A cet effet, rédiger et déposer toutes pièces,  
nter toutes requêtes, signer tous registres, donner  
s décharges, verser et retirer toutes taxes, répondre  
ites demandes et notifications; au besoin, modifier  
rriger ultérieurement, toutes pièces; en cas de  
nciation ou de refus pour une cause quelconque,  
senter les demandes s'il y a lieu; après délivrance,  
toutes expéditions de titres; élire domicile,  
tituer tout ou partie des présents pouvoirs;  
plir toutes formalités; et généralement faire tout  
qui sera utile pour l'exécution du présent mandat.

Declarant reconnaitre et ratifier tous les actes  
omplis pour la réalisation dudit mandat.

Fait à

le

For the purpose aforesaid, to draft and file all  
documents, to make all petitions and requests, to sign  
all records, to give all releases, to pay and withdraw  
all taxes, fees and charges, to reply to all requests and  
notifications; to make subsequent modifications and  
corrections in all documents as and when the need  
arises, if necessary to present applications again in the  
event of abandonment or refusal for any cause  
whatsoever; after granting to take all copies of title-  
deeds; to elect domicile, to substitute all or part of the  
present powers; to comply with all formalities; and  
generally to do all that will be useful in performance  
of the present mandate.

As hereby declared to acknowledge and confirm  
all the acts performed in fulfilment of the mandate  
aforesaid.

Executed in Maynard, Massachusetts, USA

this 14 day of November, 1997

By:

Arthur W. Fisher  
Assistant General Counsel  
Assistant Secretary  
Assistant Clerk

acceptance and for  
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nate the inventor/s.  
filed as conforming  
to official actions.  
o apply for refunds  
thdraw applications  
certificates issued  
with all briefs, and  
of Appeals, to file

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competent Offices  
is all requests and  
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939, No. 1127 and

## Pouvoir.

soussigné

constitue

pour Mandataire

à qui donne pouvoir de pour  
faire toutes les démarches nécessaires à l'effet

A cet effet, rédiger et déposer toutes pièces, présenter toutes requêtes, signer tous registres, donner toutes décharges, verser et retirer toutes taxes, répondre à toutes demandes et notifications; au besoin, modifier et corriger ultérieurement, toutes pièces; en cas de renonciation ou de refus pour une cause quelconque, représenter les demandes s'il y a lieu; après délivrance, lever toutes expéditions de titres; élire domicile, substituer tout ou partie des présents pouvoirs; remplir toutes formalités; et généralement faire tout ce qui sera utile pour l'exécution du présent mandat.

Déclarant reconnaître et ratifier tous les actes accomplis pour la réalisation dudit mandat.

Fait à

le

## Power of Attorney.

The undersigned

DIGITAL EQUIPMENT CORPORATION

111 Powdermill Road  
Maynard, Massachusetts 01754-1499  
U.S.A.

appoint

Societe de Protection des Inventions  
25, Rue de Ponthieu  
75008D Paris  
FRANCE

as agent to whom we give power to take all  
the necessary steps for US and in OUR name  
for The National Phase of European  
Patent Application No.: 9111-755.5

TITLE: HIGH SPEED BUS SYSTEM

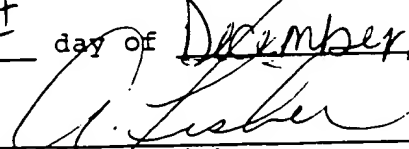
For the purpose aforesaid, to draft and file all documents, to make all petitions and requests, to sign all records, to give all releases, to pay and withdraw all taxes, fees and charges, to reply to all requests and notifications; to make subsequent modifications and corrections in all documents as and when the need arises, if necessary to present applications again in the event of abandonment or refusal for any cause whatsoever; after granting to take all copies of title-deeds; to elect domicile, to substitute all or part of the present powers; to comply with all formalities; and generally to do all that will be useful in performance of the present mandate.

As hereby declared to acknowledge and confirm all the acts performed in fulfilment of the mandate aforesaid.

Executed in Maynard, Massachusetts, USA

this 1<sup>st</sup> day of December, 1997

By:

  
Arthur W. Fisher  
Assistant General Counsel  
Assistant Secretary  
Assistant Clerk

digital

Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418

**RECEIVED**  
Law Department

December 1, 1997

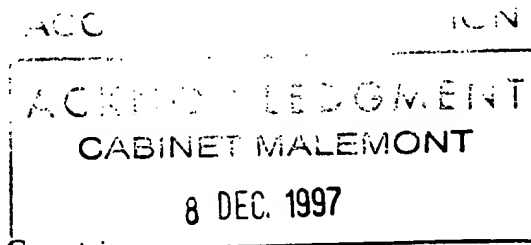
DEC 17 1997

*It*

VIA DHL COURIER

AMB

Mr. Robert Chauchard  
Cabinet Malemont  
42, Avenue du President Wilson  
75116 Paris  
FRANCE



RE: National Phase in Designated EPO Countries  
European Patent Application No.: 91110755.5  
Our Reference No.: PD 90-0282 FR

Dear Mr. Chauchard:

Please complete the national phase requirements in your country for the above-referenced granted EPC application.

Enclosed please find:

1. A copy of the letter to the main EP associate containing information regarding fees, invoices, and translation instructions (Note: If your firm is preparing a common translation, kindly distribute the translation as indicated in a timely manner.);
2. Listing of National Associates;
3. Cover Sheet of the International Publication;
4. Communication under EPC Rule 51 (4);
5. Power of Attorney

Please ensure that you complete filing of the approved text in your national patent office in a timely manner. One copy of the national translation filed by you should accompany your SINGLE invoice, which should be in the Digital format.

RECEIVED  
LAW DEPT-PLG

DEC 23 1997

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_



**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

Dipl.-Ing. Jürgen Betten  
Dipl.-Phys. Michael Resch

Reichenbachstrasse 19  
D-80469 München  
☎ 0 89 - 2 60 30 88  
Telefax 0 89 - 2 60 78 96

Patents · Trademarks · Designs  
Computer Program Protection

**DIGITAL EQUIPMENT CORPORATION**

David Suhl  
Patent Associate  
111 Powdermill Road  
Maynard, MA 01754-1418  
U.S.A.

- Tuxton*
- ① Docket post grant EP response to Ann.  
Deadline Nov 25 '97
  - ② David Suhl fyi.
  - ③ File

September 4, 1997

European Patent Application No. 91110755.5  
"High speed bus system"  
DIGITAL EQUIPMENT CORPORATION  
Your Ref.: PD90-0282  
Our File: DEC 154 EP B/SE

Docketed 9/17 Atty. Nach  
PTO Date 9/4 FLF Date \_\_\_\_\_  
Due Date 12/2/97  
Action PST GRT  
By WT

**COMMUNICATION UNDER RULE 51(4) EPC**

Dear Mr. Suhl,

We have the great pleasure of advising you that according to the enclosed \*communication the Examining Division intends to grant a European patent on the basis of the enclosed \*text and drawings for the above-identified application.

The minor amendments proposed by the Examining Division are in our opinion acceptable.

An objection against this advance notice can be filed by

January 2, 1998

We will state our approval one month before the above date, i.e. on

December 2, 1997

unless we receive instructions to the contrary.

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SEP 11 1997

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_

Please note that the date of approval to the text proposed by the Examining Division is the last possibility to file a divisional application for this subject matter.

In case of acceptance the patent will be granted for the following countries:

DE FR GB IT NL

Due to the rather short terms of the EPO granting procedure and the costs for the translation of the patent for almost all countries we advise to consider already now whether you want the protection in all countries or only in some of them.

Yours sincerely,

A handwritten signature in cursive script, appearing to read 'Betten'.

Jürgen Betten

\*Enclosures

communication under Rule 51(4) EPC with text and drawings  
cover sheet of the publication

DATE	TIME	TO/FROM	MODE	MIN/SEC	PGS	CMD#	STATUS
25	02/26 16:33 49 89	2607896	G3--S	01'11"	002	197	OK



**FACSIMILE COMMUNICATION**

From:

DAVID SUHL

**Digital Equipment Corporation**

Law Department

111 Powdermill Road

Maynard MA, 01754

FAX: (508) 493-8804

Date: FEBRUARY 26, 1997

To: Jurgen Betten

Company: BETTEN AND RESCH

Total Number Of Pages Transmitted: 2

\*Please contact our FAX operator at (508) 493-5875, or the sender in the event of transmission difficulty. Senders telephone: (508)493-5875

Comments: YOUR REF. NO. DEC 154 EP B/GR

OUR REF. NO. PD90-0282 EP

EUROPEAN PAT. APPLIC. NO. 91110755.5

TITLE: HIGH SPEED BUS SYSTEM

FAX Number: 8-011-49-89-2607896



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418

VIA FACSIMILE - ORIGINAL MAILED  
Facsimile No. 8-011-49-89-2607896

February 25, 1997

Jurgen Betten  
Betten and Resch  
Reichenbachstrasse 19  
(Gärtnerplatz)  
D-80469 München  
GERMANY

Subject: European Patent Application No. 91110755.5  
Your Ref. No.: DEC 154 EP B/GR  
Our Ref. No.: PD90-0282 EP  
Title: High Speed Bus System

Dear Mr. Betten,

Thank you for your letter of February 3, 1997 regarding the above referenced patent application. I have read your proposed response to the Examiner's rejections and the new set of claims. I agree with your reasoning with regard to including the limits of claim 8 in independent claim 1, as I noted in my letter of December 11. I also agree with your suggestion to maintain dependent claims 2-7 in their current state, although I would think that claim 5 should have the "state" devices match the claim 2 amendment.

If you have any further questions regarding this matter, please do not hesitate to contact me at (508) 493-7132, FAX (508) 493-8804.

Sincerely,

David Suhl  
Patent Associate



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418  
508 493 5111 Telephone

VIA FACSIMILE - ORIGINAL MAILED  
Facsimile No. 8-011-49-89-2607896

December 11, 1996

Jurgen Betten  
Betten and Resch  
Reichenbachstrasse 19  
(Gärtnerplatz)  
D-80469 München  
GERMANY

Subject: European Patent Application No. 91110755.5  
Your Ref. No.: DEC 154 EP B/GR  
Our Ref. No.: PD90-0282 EP  
Title: High Speed Bus System

Dear Mr. Resch,

Thank you for your letter of October 17, 1996 to Ram Nath regarding the above referenced patent application. I have read the two cited prior art references and have the following suggestions as to how to answer the Examiner's rejections contained in sections 3 and 4.

As far as I can understand the primary reference, Heidtmann is not using unidirectional buses nor is he directly coupling the selected bus to the central unit. These two noted differences over the cited art would appear to be significant in that they greatly increase the performance of the system. In addition, the Examiner's point in paragraph 3 about the missing memory controller in the primary prior art reference is very significant.

I would suggest rewriting claim 1 to include the limits of dependent claims 2, 3, 5, 8 and 18. Therefore claims 2-8 would be deleted. Dependent claims 9-17 would become claims 2-10, modified as appropriate. I would also suggest a slight change in the wording of claim 1. 1(a) would read "a plurality of bus elements, with each of said plurality of bus elements making requests for access to at least one other bus element;". This further points out a

difference between the present invention and the cited prior art in which each of the various resources that are using the plurality of buses initiates the request for connection.

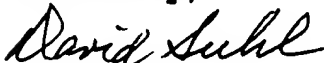
With the above noted suggestions, claim one is now limited to include the shared memory and the memory controller in the single processor case. This seems to me to distinguish the first set of claims from the cited prior art D1 and D2. The remaining dependent claims that link to claim 1 are quite system specific and may be retained in appropriately modified form, or cancelled as you feel will best advance our chances for allowance.

Similar changes to independent claim 30 and dependent claims 31 and 32 as those noted above with reference to claim 1 and associated dependent claims would appear to me to be sufficient to overcome the Examiner's objections to the similar case of multiple processors. The Examiner's rejections of the method claims 33-36 could also be successfully addressed in similar fashion.

Other than as noted above, I believe that the remaining Examiner comments should be handled by you in accordance with standard European practices.

If you have any further questions regarding this matter, please do not hesitate to contact me at (508) 493-7132, FAX (508) 493-8804.

Sincerely,



David Suhl  
Patent Associate



Corporate Law Department  
Digital Equipment Corporation  
111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1499

*fax*

To JURGEN BETTEN

BETTEN and RESCH

Fax 8-011-49-89-2607896

Phone 8-011-49-89-2603088

From DAVID SUHL

DIGITAL EQUIPMENT CORPORATION PATENT LAW GROUP

Total pages including cover 3

Fax (508) 493- 8804

Phone (508) 493- 7132

DTN 223-

Internet address

Subject OUR FILE NO. PD90-0282

YOUR REF. NO. DEC 154 EP B/GR

If you have any problems receiving this fax, please call MARIE BENNETT

Phone (508) 493- 5875

DTN 223-

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++ TX CONFIRMATION REPORT ++

AS OF DEC 11 '86 14:13 PAGE 01

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01	12/11	14:13	49 89 2607896	G3--S	01	53 03	OK



**BETTEN & RESCH**

Patentanwälte  
European Patent Attorneys  
Europ. Trademark Attorneys

Dipl.-Ing. Jürgen Betten  
Dipl.-Phys. Michael Resch

Reichenbachstrasse 19  
D-80469 München  
☎ 0 89 - 2 60 30 88  
Telefax 0 89 - 2 60 73 96

Patents · Trademarks · Designs  
Computer Program Protection

**DIGITAL EQUIPMENT CORPORATION**

Ram Nath  
International Patent Consultant  
Patent Law Group  
111 Powdermill Road  
Maynard, MA 01754-1499  
U.S.A.

*Docket to Docket Atty.*

October 17, 1996

European Patent Application No. 91110755.5  
"High Speed Bus System"  
DIGITAL EQUIPMENT CORPORATION  
Your Ref.: PD90-0282  
Our File: DEC 154 EP B/GR

Docketed 10/25 Atty. Subli  
FID Date 10/17 FLF Date \_\_\_\_\_  
D. Date 1/17/97  
A. Date 08  
By Ad

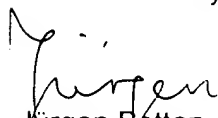
Dear Ram,

concerning the above application we have received the enclosed Communication, for which a response must be filed by February 17, 1997. Please let us have your instructions by

January 17, 1997.

If you need any further information or if we should make a proposal for new claims, please do not hesitate to let us know.

Yours sincerely,

  
Jürgen Betten

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Enclosure

OCT 23 1996

FILE \_\_\_\_\_  
ATTY \_\_\_\_\_



✓ EPA/EPO/OEB  
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Tx 523 656 epmu d  
FAX 089/2399-4465

Europäisches  
Patentamt

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European  
Patent Office

Directorate General 2

Office européen  
des brevets

Direction générale 2

Betten & Resch  
Reichenbachstrasse 19  
80469 München  
ALLEMAGNE

BETTEN & RESCH

Patentanwalt

1. Okt. 1996

**Telephone numbers:**

**Primary examiner** (0 89) 23 99- 2707  
(substantive examination)

**Formalities officer** (0 89) 23 99- 2647  
(Formalities including  
extension of time limits)

**Assistant** (0 89) 23 99- 2211  
(other matters)

Application No./Patent No. 91110755.5-2201	Ref. DKK 73 EP	Date 16. 10. 96
Applicant/Proprietor DIGITAL EQUIPMENT CORPORATION		

**Communication pursuant to Article 96(2) and Rule 51(2) EPC**

The /further/ examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable to correct the indicated deficiencies within a **period**

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 78(3) and 83(2) and (4) EPC.

Amendments to the description, claims and drawings are to be filed where appropriate within the said period in **three copies** on separate sheets (Rule 36(1) EPC).

**Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).**



P. Lacroix  
Primary examiner  
for the Examining Division

Enclosures: 3 page/s reasons (Form 2906)

**Registered letter**

EPO Form 2001 1 07 93



Beschreibung/Proto (Anlage)

Datum

Date

Date 16.10.96

Communication/Minutes

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Sheet

Feuille

1

Notification/Procès-verbal (Annexe)

Anmelde-Nr.:

Application No.: 91 110 755.5

Demande n°:

The examination is being carried out on the application documents as originally filed.

\*\*\*\*\*

1. All claims are objected to as not meeting the requirements of Rule 29(7) EPC.
2. Independent Claims 1, 30 and 33 are objected to as not meeting the requirements of Rule 29(1) EPC.
- 3). The present application does not meet the requirements of Article 52 (1) EPC because the subject-matter of the independent claims 1, 30 and 33 does not involve an inventive step in the sense of Article 56 EPC.

#### Document

D1: DE - A - 3 340 123

He 07.04.97

discloses a system and the method thereof, said system comprising a bus system (Address and data bus: AD and DB) to which a plurality of bus elements (P0..Pn) are attached and further comprising:

- a central unit (Ports P0..Pn, ZS);
- a first and a second plurality of buses (Cf. Page 7, Lines 32 - 36);
- arbitration logic (ZS; Cf. From Page 7, Line 37 to Page 8, Line 11);



Beschreibung/Protokoll (Anlage)

Datum

Date 16. 10. 96

Date

Communication/Minutes (Anlage)

Blatt

Sheet 2

Feuille

Notification/Procès-verbal (Annexe)

Anmelde-Nr.:

Application No.: 91 110 755.5

Demande n°:

The system comprises further a shared memory (KS - Cf. Page 7, Lines 10 - 23).

The subject matter of D1 differs thus from that of the objected claims in that it does not provide any memory controller along with the buses coupled therewith but instead a plurality of ports associated each to a specific processor and allowing selectively access to only one CPU (Cf. Page 8, Lines 1 - 3).

The solution proposed in the above cited independent claims of the present application cannot be considered as involving an inventive step (Articles 52(1) and 56 EPC) since a memory controller is described in document

D2: WO - A - 8 704 826 K C D F

as providing the same advantages as in your application (Cf. Page 7, Lines 6 - 13). The skilled person would therefore regard it as a normal design option to include this feature in the system described in document D1 in order to solve the problem posed as both documents belong to the same field, that of multiprocessors sharing a common memory and both documents contain comparable elements which would lead the skilled person faced with the problem of accessing a memory device to apply the mechanism shown from D2 to the device known from D1.

Claims 1, 30, 33 are refused by virtue of Articles 56 and 52(1) EPC.

- 4). The instant application distinguishes in many points over the cited prior art. Thus, the Applicant



Beschreibung (Proto (Anlage)

Datum

Date

Date

10.10.96

Communication/Minutes

Blatt

Sheet

Feuille

3

Notification/Procès-verbal (Annexe)

Anmelde-Nr.:

Application No.: 91 110 755.5

Demande n°:

should delimit the claims against the cited prior art and redirect the invention towards non obvious embodiments of the high speed bus system. In doing that, the Applicant should:

a - acknowledge the state of the art as disclosed in D1 by means of a brief description of the devices disclosed therein;

b - identify the new problem to be solved by the present invention with regard to D1;

c - specify the differences between the prior art and present claims; and

d - indicate how these differences provide the solution to the problem to be solved - Rule 27(1) EPC.

5). Claim 2 is unclear as it refers to a state device without further indication relating to the functions of such a device (not appertaining to the state of the art). A complete definition e.g. by means of functional structures appears therefore necessary (Article 84 EPC).

6). To meet the requirements of Rule 27(1)(b) EPC, the document D1 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

New application documents should be filed in triplicate.



Digital Equipment Corporation

111 Powdermill Road  
Maynard, Massachusetts USA  
01754-1418

August 2, 1996

VIA FACSIMILE

Mr. Jürgen Betten  
Betten & Resch  
Patentanwalte  
Reichenbachstrasse 19  
(Gartnerplatz)  
D-80468 München  
GERMANY

RE: Pending applications being handled by Kenyon & Kenyon, USA

Dear Jürgen,

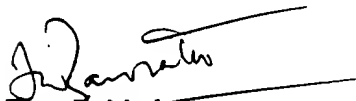
The patent applications identified in the attached listing are still pending and handled hitherto by Kenyon & Kenyon (Kenyon).

Our management has recommended that these pending patent applications should be brought in-house into the Digital Law department for further prosecution. Accordingly, please note that all future papers, including invoices, office actions and other correspondence relating to these patent applications should henceforth be sent directly to us.

By copy of this letter to Kenyon, we are informing them of the transfer of further prosecution responsibility.

Please acknowledge this letter. We thank you for your assistance in this matter.

Yours very truly,

  
Ram B. Nath

International Patent Consultant  
Patent Law Group

RBN:rmj

cc: Kenyon / Robert Tobin Esq.,  
Joyce Lange / CPI  
Ann Skrzyniarz

# Kenyon & Kenyon - Listing B

FD Number	Country	Application No.	Associate
88-0016	EP	88113161.9	Betten
88-0177	JP	503888	Nakamura
88-0196	JP	504732/89	Nakamura
88-0199	JP	504733/89	Nakamura
88-0201	EP	89904422.6	Betten
88-0402	EP	89113313.3	Betten
88-0404	EP	89113324.1	Betten
88-0479	EP	90306160.4	Eric Potter
88-0489	EP	90109977.0	Betten
88-0495	EP	89111102.3	Betten
88-0497	EP	90306160.4	Eric Potter
88-0504	EP	90103115.3	Betten
89-0121	EP	90109978.8	Betten
89-0206	EP	90111017.1	Betten
	JP	139524/90	Nakamura
	KR	8309/90	Lee
89-0267	CA	2,032,435	Smart
	EP	90125014.2	Betten
	IN	1259/DEL/90	Kumaran
	JP	000564/91	Nakamura
89-0273	EP	90122593.8	Betten
	JP	403242/90	Nakamura
89-0274	EP	91110754.8	Betten
89-0301	EP	90306161.2	Eric Potter
	JP	151450/90	Nakamura

# Kenyon & Kenyon - Listing B

PD Number	Country	Application No.	Associate
89-0328	EP	91110775.3	Betten
90-0079	CA	2,029,259	Smart
	EP	90122165.5	Betten
90-0172	EP	91110776.1	Betten
90-0282	EP	91110755.5	Betten
90-0283	EP	91110772.0	Betten



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March 8, 1993

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ROBERT A. WHITMAN

Ms. Joyce Lange  
Digital Equipment Corporation  
MS02-3/G3  
111 Powdermill Road  
Maynard, MA 01754-1418

Re: EPO Patent Application No.: 91110755.5  
Your Ref.: PD90-0282 - Our Ref. 17380/1103

Dear Joyce:

The third year annuity falls due on the above-identified EPO patent application on June 28, 1993.

We have instructed our associate to pay this fee and to continue to maintain this application on their maintenance records up to and including the time of payment of the first annuity fees due in the national countries after grant. As usual, we will advise you each year of the annuity requirements.

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APR 1 1993

OFF  
ADV

J. LANGE

Very truly yours,

KENYON & KENYON

By:

Ann M. Murphy  
Legal Assistant to  
Robert T. Tobin

Enclosure

cc: Robert T. Tobin, Esq.  
116022

LAW OFFICES OF  
**KENYON & KENYON**

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1025 CONNECTICUT AVENUE, N.W.  
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March 8, 1993

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Betten & Resch  
European Patent Attorneys  
Reichenbachstrasse 19  
D-8000 Munchen 5  
Germany

Re: EPO Patent Application No. 91110755.5  
Your Ref. DKK 73 EP B/Rt  
Our Ref. 17380/1103 - (PD90-0282)

Dear Sirs:

Please attend to payment of the third year annuity due June 28, 1993 on the above-identified EPO patent application.

Please also continue to maintain this application on your annuity docket system for reminders and payments of annuities due up to and including the first annuities due in the national countries after grant. At that time, the national agents should be advised to send us a reminder for the second annuity due in their respective country.

If you have any questions concerning this matter, please let us know.

Very truly yours,

KENYON & KENYON

By: 

Ann M. Murphy  
Legal Assistant to  
Robert T. Tobin

cc: Robert T. Tobin, Esq.  
116021

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February 19, 1993

European Patent Application 91110755.5 of DEC  
Your ref.: 17380/1103 (PD90-0282)  
Our file: DKK 73 EP B/Rt.

SOLE FEE REMINDER

Dear Ms. Murphy,

This is to remind you that for the above application or protective  
right, respectively, the 3rd annual fee must be paid until

June (28), 1993.

The costs, inclusive official fees will amount to DM 890,--.

According to your general instructions we will pay the annual fee and  
send you our debit note one month before the above date, unless we  
will be instructed otherwise until May 25, 1993. Together with our  
debit note we will inform you of the date of payment of the fee.

Yours very truly,

BETTEN & RESCH

*i.A. Hinkel*

RECEIVED  
FEB 25 1993  
10 25 AM '93  
17380/1103  
91110755.5  
DEC 10004

MAR 12 1992

Digital Attorney: MORAN  
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To Professional Services

File: MUX BUS/OR BUS, 1103/PD90-0282 (EPO)  
Group: VSS

MAR 23 1992

Review and study of this file together with communication from European Patent Office requesting confirmation of applicant's intention to proceed with prosecution of this application; preparation and forwarding instructions to agent to respond to official communication; preparation and forwarding report to client

January 31, 1992

550	W.M. KENNARD (Review)	.50 hrs.	@ \$ 230	\$	115.00
550	A. MURPHY (Receiving official communication; forwarding copy of instructions to agent to client; update records)	.75 hrs.	@ \$ 85	\$	63.75

Subtotal	\$	178.75
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1770	Postage	\$	3.40
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MAR 17 9 01 AM '92

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KENYON & KENYON  
Attn. Ms. Ann M. Murphy  
One Broadway  
New York, N.Y. 10004  
U.S.A.

March 8, 1992

European patent application No. 91 110 755.5  
Digital Equipment Corporation  
Your ref.: 17380/1103  
Our file: DKK 73 EP B/ro

PROCEEDING FURTHER WITH THE EUROPEAN PATENT APPLICATION

Dear Ms. Murphy,

according to our letter of January 17, 1992 we have now filed the enclosed response with the EPO indicating that applicants desire to proceed further with the application.

Yours sincerely,

*Betten*

Jürgen Betten

Encl.

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European Patent Office  
8000 München 2

March 8, 1992

European patent application No. 91 110 755.5-2201  
Digital Equipment Corporation  
Our file: DKK 73 EP B/ro

In response to the communication of January 14, 1992.

This is to confirm that applicants desire to proceed further with the application.



Jürgen Betten

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January 20, 1992

European patent application No. 91 110 755.5  
Digital Equipment Corporation  
Your ref.: 17380/1103  
Our file: DKK 73 EP B/ro

Dear Ms. Murphy,

please find enclosed the European Patent Application in print.

Yours sincerely,

*Betten*

Jürgen Betten

Encl.

JAN 24 1 38 PM '92

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FEBRUARY 11 1992  
KENTON & KENTON  
NEW YORK, N.Y.



Europäisches Patentamt  
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Publication number: **0 464 708 A1**

②

## EUROPEAN PATENT APPLICATION

① Application number: 91110755.5

⑤ Int. Cl.<sup>5</sup> G06F 15/16, G06F 13/36

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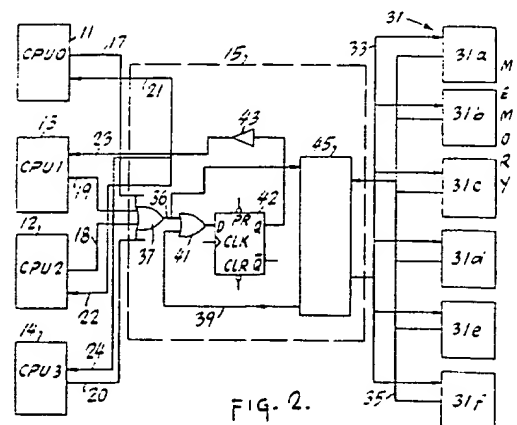
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⑤ High speed bus system.

⑤ A high speed bus system for use in a shared memory system that allows for the high speed transmissions of commands and data between a number of processors and a memory array of a multi-processor, shared memory system, with the high speed bus system including a central unit and a series of uni-directional buses that connect between the plurality of processors and shared memory, with the central unit including arbitration logic and a series of multiplexers to determine which CPUs are granted access to shared buses, scheduling logic that works with the arbitration logic and multiplexers to determine which CPUs are granted access to the shared buses, and port logic for combining the CPU transmissions and determining if such transmissions are valid.



EP 0 464 708 A1



other processors and from the shared memory to the processors. The transmissions output from the state device are processed by the driver before being placed on the point-to-point buses to the processors.

The second embodiment of the central unit is similar to the first embodiment except that the series of OR gates is replaced with a series of multiplexers and a logic element is added to control the multiplexers. The first multiplexer of the series has logic associated with its input to assist in the keeping the shared bus full, as well as determining the validity of commands and data from the processors.

#### Brief Description of the Drawings

Figure 1 is a general block diagram of a system that includes the high speed bus system of the present invention.

Figure 2 is a simplified block diagram of a first embodiment of the present invention using OR gates.

Figure 3 is a simplified block diagram of a second embodiment of the present invention using multiplexers.

Figure 4 is a more detailed block diagram of a portion of the central unit shown in Figure 3.

Figure 5 is a more detailed block diagram of the scheduling logic shown in Figure 4.

Figure 6 is a more detailed block diagram of the resource check logic shown in Figure 4.

Figure 7 is a timing diagram for read command timing.

Figure 8 is a timing diagram for snoopy refill command timing for snoopy hits.

Figure 9 is a timing diagram for SWAP command timing.

#### Detailed Description

The high speed bus system of the present invention provides a high speed bus for use in transmitting commands and data between the processors and a shared memory in a multi-processor, shared memory system.

Figure 1 is a general block diagram of a system in which the system and method of the present invention may be implemented. This system has CPU 0 at 11, CPU 1 at 13, CPU 2 at 12, and CPU at 14. These CPUs are coupled to central unit 15. Central unit 15 will be described in detail subsequently.

Each of the CPUs is connected to the central unit 15 over a point to point bus. Accordingly, E-BUS 0 TA bus 17 connects CPU 0 at 11 to central unit 15, E-BUS 1 TA bus 19 connects CPU 1 at 13 to central unit 15, E-BUS 2 TA bus 18 connects

CPU 2 at 12 to central unit 15, and E-BUS 3 TA bus 20 connects CPU 3 at 14 to central unit 15 (collectively, "E-BUS TA buses"). These uni-directional buses are for transmissions from the CPUs to central unit 15. For the transmission of data from central unit 15 to the CPUs, there are E-BUS 0 FA bus 21, which connects CPU 0 at 11 to the central unit, E-BUS 1 FA bus 23, which connects CPU 1 at 13 to the central unit, E-BUS 2 FA bus 22, which connects CPU 2 at 12 to the central unit, and E-BUS 3 FA bus 24, which connects CPU 3 at 14 to central unit.

Each of the CPUs also connect to an I/O bus adaptor 25 over two uni-directional buses. Each is a 16-bit bus. One bus is an input bus and the other is an output bus.

As shown in Figure 1, control console 29 is associated with CPU 0 at 11. However, it is understood that it may be associated with more than one CPU.

Central unit 15 is connected to shared memory 31 by uni-directional A-BUS FA 33 and uni-directional bus A-BUS TA 35. A-BUS FA 33 is for transmissions from the central unit to the shared memory 31. Conversely, A-BUS TA 35 is for transmissions from shared memory 31 to the central unit.

Shared memory 31 includes memory modules which are designated 31a, 31b, 31c, 31d, 31e, and 31f. Each memory module connects to central unit 15 via A-BUS FA at 33 and A-BUS TA at 35. It is to be understood that there may be more shared memory, or there may be more or less memory modules for a single shared memory and still be within the scope of the invention. It is further understood that each module may be of the same type of memory or each may be of a different type.

E-BUS TA buses 17, 19, 18, and 20, E-BUS FA buses 21, 23, 22, and 24, and A-BUS FA bus 33 are 32-bit parallel buses, and A-BUS TA bus 35 is a 64-bit parallel bus.

The central unit 15 performs two basic functions. First, it combines the signals input to it from the CPU and memory on the E-BUS TA and A-BUS TA buses, respectively, so that they are provided as outputs on the output buses E-BUS FA and A-BUS FA. Second, it contains a memory controller for memory modules 31a-31f. Central unit 15 also controls system timing. This is done through a central clock which is not shown.

Figure 2 is a block diagram of the system shown in Figure 1, with the first implementation of the present invention in the system shown in Figure 1. In this implementation, OR gates are used to combine the point to point signals from E-BUS TA buses 17, 19, 18, and 20 into a common signal.

As shown in Figure 2, the 32-bit wide E-BUS TA buses 17, 19, 18, and 20 connect to the series

operation which is known as a "snoopy" operation, is done with timing that insures that any response to a "snoopy" read, which is a "snoopy hit," takes place before refill data returns from one of the memory modules in memory 31.

Again referring to Figure 4, the information on buses E-BUS 0 TA bus 17, E-BUS 1 TA bus 19, E-BUS 2 TA bus 18, and E-BUS 3 TA bus 20 is input to state device 53. The output of the state device 53 is coupled to MUX 59 and to buffer 55. Buffer 55 can store up to three words of predetermined length.

The output of the state device 53 is also input to validity logic 57. The second input to validity logic 57 is a signal that is fed back from the output of validity logic 57. The other output of validity logic 57 connects to the selection inputs of MUX 59. The PORT GRANT signal on line 61, which is output from arbitrator 51, is also input to validity logic 57.

The function of validity logic 57 is to determine if commands and data are valid, and which of the data, either in buffer 55 or input directly to port MUX 59, are to be switched onto bus 63 at the output port MUX 59.

The output of port MUX 59 on bus 63 is input to MUX 37a. The output of port MUX 59 on bus 63 is also input to port select logic 65. MUX 37a and port select logic 65 are part of scheduling logic 66.

Port select logic 65, in response to outputs from the arbitrator 51, selects one of the four inputs to MUX 37a to be coupled to the output of that MUX. This is coordinated with the operation of validity logic 57 which controls the output of port MUX 59 on bus 63. Port select logic 65 grants the four ports supplying inputs to bus 63 access to bus 36 on a round robin basis.

Output bus 36 is input to resource check logic block 67 of the arbitrator 51, MUX 41a, and a number of other units. These units are memory map unit ("MMAP") 69, lock logic unit ("LOCK") 71, input/output unit ("CPIO") 73, interrupt request unit ("IREQ/SNIT") 75, memory controller ("MEMC/DBEC") 77, and memory write data path unit ("MWDP") 79. Each of the units 69, 71, 73, 75, and 77 also provide inputs to the MUX 41a.

Resource check 67 receives status inputs from MMAP 69, LOCK 71, CPIO 73, IREQ/SNIT 75, MEMC/DBEC memory controller 77, and MWDP 79. These are the memory module status, the lock register status, the I/O module status, the error status, the memory controller status, and the write buffer status messages. In addition, the resource check logic block 67 generates ARB commands for input to the MUX 41a and a ARB MUX SELECT command for selecting which input will be output from MUX 41a for input to state device 42.

A-BUS TA 35 is a 64-bits wide bus. The sig-

nals on that bus include DAL information, ECC (error correction code) information, and ACK (acknowledgement) information. The ACK bit is processed by memory read data path ("MRDP") 81. The output of MRDP 81 which includes the DAL and ECC information is input to MEMC/DBEC 77. The DAL information here is generally refill data. The output of MEMC/DBEC is the refill data and this output is one of the inputs to MUX 41a.

MEMC/DBEC 77 also provides an output on A-BUS FA bus 33. This output includes the DAL, ECC, FC, and parity information. This information on A-BUS FA bus 33 is input to memory modules 31a-31f. The output of MUX 41a through the state device 42 includes the same information that MEMC/DBEC 77 put on A-BUS FA 33 except that the ECC information is not included.

When the appropriate command signal on bus 36 is input to resource check logic 67, the resource check logic uses the status information input from MMAP 69, LOCK 71, CPIO 73, IREQ/SNIT 75, MEMC/DBEC 77, and MWDP 79 to arbitrate between the different inputs to determine which input will be given access to E-BUS TA buses 21-24 through MUX 41a and state machine 42. The signals that desire access to these buses are the RSCK DAL and RSCK FC signals on bus 36, MMAP LW RD DAL signal output from MMAP 69, LOCK LW RD DAL signal output from LOCK 71, the CPIO LW RD DAL signal output from CPIO 73, the IREQ/SNIT LW RD DAL output from IREQ/SNIT 75, and the METL REFILL DAL signal output from MEMC/DBEC 77. Resource check logic 67 controls access to these buses via the output lines coupled through state devices 67a and 67b and the ARB MUX SELECT signal output from resource check logic 67.

The outputs from state device 67a on line 61 and 85 are for controlling access of E-BUS TA bus information onto bus 36. The outputs from state device 67b on lines 83 are for causing selected DAL information from MMAP 69, LOCK 71, CPIO 73, IREQ/SNIT 75, and MEMC/DBEC 77 to be input to MUX 41a.

Figure 5 is a more detailed block diagram of the scheduling logic 66 of Figure 4. As stated, the scheduling logic includes as major elements port select logic 65 and MUX 37a. The output of the port logic 65 on bus 63 is input to scheduling logic 66. This input includes the port DAL signals, the port FC signals, the port "snoopy hit" signals, and the port CMD VALID (command valid) signals. The selection of which of these signals will be output from port logic 49 is determined by validity logic 57.

Referring to Figure 5, lines 87 of bus 63 carry the port "snoopy hit" signals. These signals are inputs to priority encoder 89 and OR gate 91. The

is input to the selection input of MUX 403, usually selects the "current port" input for output from that MUX. This "current port" output will select its signals for output from MUX 37a on bus 36. It is only when other events take place that the other inputs to MUX 403 are selected for output as will be described.

Now that the method by which a port is given access to bus 36 has been described, the operation of scheduling logic 66 will be discussed.

Each command is usually followed by at least one word. This word may be an address, or data (in the case of a refill). This address or data may be followed by additional data (in the case of a write command), a refill command, or a SWAP command (a combined read and write command).

Once a port is given access to the bus, it must continue to be given access until it is finished transmitting its commands or data onto bus 36. For example, in the case of a SWAP command, the port must have continuous access to send the SWAP command, a read address, a write back command, a write address, and then the write data. During the time that the data and commands are being sent, FC changes states according to what is on the DAL lines. If it is a command, it has one state and the other state if it is not a command.

The purpose of the MUX 403 is to select between a "previous port", a "snoopy port", and the "current port". As stated, it is only when predetermined events take place that the "previous port" or "snoopy port" inputs to MUX 403 are selected. The method of selecting the output of MUX 403 will now be discussed.

The output of MUX 403 is input to the selection inputs of MUX 37a. This determines which port is granted access to bus 36. Normally, the output of MUX 403 is the "current port"; hence the "current port" is selected at MUX 37a. The "current port" is also input to state device 411. On the clock cycle after the "current port" is input state device 411, with the output therefrom on line 417. This output is input to the selection inputs of OLD FC MUX 95 and fed back as the "previous port" put to MUX 403.

After passage of one cycle, the information being transmitted on the port selected at MUX 37a is data or addresses, and not a command. Accordingly, the FC signal will change states. This new state will be input to port select generator 93. This will cause the SCHED MODE SELECT (scheduling mode selector) output of the generator to have a bit pattern that will select the "previous port" input to MUX 403 which is latched in state device 411. The "previous port" value will remain as the output of MUX 403 until the state of the FC signal on line 419 changes signifying the end of data and the presence of a new command. It is only then that

port select generator 93 will change its selection signals to select the "current port" rather than the "previous port." This action ensures that data transmission is complete before another command is placed on bus 36.

In the meantime, in response to the change in state of the FC signal on line 419, the "next port" value is selected at MUX 407. This is done by port select generator 93 changing which output the selection signals selects to be output from MUX 407. Once selected, the "next port" signal, through state device 409, is fed back to MUX 407 and barrel shifter 99. Barrel shifter 99 then selects the next valid port, which now becomes the "current port" on line 413. The scheduling logic 66 now awaits the next change in the state of the selected FC signal for repeating these actions. As an example of the operation of scheduling logic 66, the following is provided.

During normal operations, without a "snoopy hit," when the "current port", e.g., port "0", is selected and coupled through MUX 403, this "current port" signal makes the selection of the "current port" DAL and FC at MUX 37a. On the next clock cycle, this port designation, i.e., port "0", is available at the output of state device 411. The output of state device 411 selects the corresponding port FC signal to be output from MUX 95. Thus, if port "0" is the current port, the FC bit for port "0" will be output from MUX 95 and fed back to port select generator 93.

During the first cycle, which contained a command, the FC bit, for example, may be a logic "1" value. On the second cycle, when other than a command is transmitted, it will change to a logic "0" value.

When the port "0" FC signal switches, this changed value is input to port select generator 93. In response to this change, port select generator 93 will select the "previous port" input that is output from state device 411. Hence, the output of MUX 403 is the "previous port" input. This all results in a holding period so that all of the port "0" information can be transmitted. Once the FC signal changes states to indicate that a command is again being transmitted, the output from port select generator 93 to the selection inputs of MUX 403 will again select the "current port" input, which now is port "1". The process repeats itself for each of the ports taken in round robin fashion.

The remaining portions to be discussed regarding Figure 5 relate to granting "snoopy hits" access to bus 36. With regard to normal operations, access of the ports to bus 36 was predicated on the SCHED GRANT (scheduling grant) signal on line 85a from arbitrator 51 having the proper state.

"Snoopy hits" are given priority over normal commands and data. Accordingly, the SNOOPY

memory transfers. These are the read commands, write back commands in which data is written from one CPU to memory, refill commands in which data is written to one CPU from either memory or another CPU, and SWAP command. These commands will be described in conjunction with the appropriate Figures.

Referring to Figure 7, a timing diagram for a read command is shown. For the purposes of this example, let it be assumed that CPU 1 is sending out a read command. At the first cycle, CPU 1 sends read command 101 followed by address 103 at the second cycle. At the second cycle, the command is arbitrated as indicated at 105. The arbitration will be between the CPUs competing for access to bus 36. The read command is loaded into the first buffer location of buffer 55 and the read address is loaded into the second buffer location of that buffer (see Figure 4). Buffer 55 can hold up to three words in its three buffer locations, but only two of those locations are used here.

If the command is valid, as determined by validity logic 57, and the requested memory module is available, at the third cycle, the CPU 1 port is granted access to bus 36 as shown at 107 of Figure 7. This is done by coupling the read command in the first buffer location of buffer 55 (See Figure 4) to bus 36 through MUXes 59 and 37a. This command is then coupled through MUX 41a reaching E-BUS FA buses 21-24.

During the next cycle, the address from the second buffer location of buffer 55 in port logic 49 is put on bus 36 as indicated at 111. The read command at 101, which the CPU put on one of the E-BUS TA buses during the first cycle, appears on each of the E-BUS FA buses 21-24 during the third cycle. In this way, the CPU which sent the original command will know, as will all of the other CPUs, that the request has been granted and that the requesting CPU has been given access to bus 36. This is done without the necessity of making a separate communication to each CPU. Also, the read command and address at 101 and 103, respectively, are provided to each of the other CPUs so that they may determine if they have the requested information in their caches for the purpose of a "snoopy hit."

If it is a write command, the first piece of data is sent on a third cycle. The remainder of the data is provided in subsequent cycles. The write command and address will be processed in the same manner as a read command and address. The data, however, will be written to memory and not returned.

Figure 8 is a timing diagram for "snoopy" refill command timing. Referring to this Figure, the processing of "snoopy hits" will be discussed. As stated, a "snoopy hit" occurs when a CPU has the

address associated with a read command in its cache memory. The CPU that has the data in its cache responds to the read command by putting out a "snoopy refill" command followed by refill data on its E-BUS TA bus.

Starting with the first cycle shown in Figure 8, refill command 201 is output from a CPU and input to the first buffer location of buffer 55 (Figure 4), then a predetermined number cycles of refill data are output. The data is output at a rate of one byte per cycle. As shown, the first byte of refill data 203 is output at the second cycle and this first byte is input to the second buffer location of buffer 55 (Figure 4), second byte 205 at the third cycle is input to the third buffer location of buffer 55 (Figure 4), and third byte 207 at the fourth cycle is held at state device 53 (Figure 4). The remainder of the data is output at subsequent cycles.

As an example, assume bus 36 was busy when refill command 201 was sent from CPU 3 at 14. As a result, CPU 3 at 14 will have to wait for access to the bus. Accordingly, the refill command, data "0", and data "1", are sent and held in the buffer 55 in port logic 49, as stated, until access is granted. This buffer of port logic 49, as stated, can hold 3 words.

Because the bus was busy, the earliest times at which arbitration can take place is at the fourth cycle. Thus, CPU 3 was given access to the bus 36 two cycles after it asked for it (two cycles late).

In the meantime, at the fourth cycle, the third piece of refill data "2" as 207 has been placed on the bus and is held in state device 53 (Figure 4) because the buffer can only hold 3 words and, therefore, it is full. Once arbitration takes place at 206 and arbitrator 51 gives CPU 3 access to the bus 36, the refill command is available on all E-BUS FA buses 21-24. This takes place at the fifth clock cycle.

At the fifth cycle, the refill command is latched in state device 42. This refill command, indicated at 209, is transferred from the first buffer location. Similarly, the refill data "0" at 211 is transferred from the second buffer location in buffer 55 and the refill data "1" at 213 is transferred from the third buffer location. At the seventh cycle, the refill data "2" is transferred into the state device 42. It, therefore, is ready for output on the E-BUS FA at the next cycle, as shown at 215.

During the fourth cycle at 206, when arbitrator 51 granted the port access to the bus via line 61, validity logic 57 (see Figure 4) coupled the input from the first buffer location in buffer 55 (see Figure 4) through MUX 59. Hence, this input is output from the MUX on bus 63. On the next cycle, the input in the second buffer location of buffer 55 is coupled and in the following cycle, the input in the third buffer location is coupled. After that, the out-

input the output of the first OR gate and as a second input the first bus from the shared memory, with the output of the second OR gate being coupled to the second buses to the central processing unit.

12. A system as recited in claim 11, wherein the system further includes a state device that is connected to the output of the second OR gate, with the output of the state device being connected to the second buses leading to the central processing units.

13. A system as recited in claim 12, wherein the system further includes at least one driver between the output of the state device and the second buses leading to the central processing units.

14. A system as recited in claim 8, wherein in the central unit includes multiplexer circuits and arbitration logic for controlling the multiplexers.

15. A system as recited in claim 14, wherein the multiplexer logic, comprises:

a first multiplexer which has as inputs a first bus from each of the central processing units and providing an output coupled to the second bus from the central unit to the shared memory; and

a second multiplexer which has as a first input the output of the first multiplexer and as a second input the first bus from the shared memory to the central unit, with the output of the second multiplexer being connected to each of the second buses leading to the central processing units.

16. A system as recited in claim 15, wherein the system further includes a first state device at the output of the second multiplexer, with the output of the first state device being connected to the second buses leading to the central processing units.

17. A system as recited in claim 16, wherein the system further includes at least one driver between the output of the first state device and the second buses leading to the central processing units.

18. A system as recited in claim 17, wherein the central unit further includes a memory controller, with the memory controller providing at its output the second bus to the memory and having as an input the first bus from the memory, with the memory controller connecting the first bus to the second multiplexer and con-

necting the output of the first multiplexer to the second bus.

19. The system as recited in claim 18, wherein the system further includes port logic that connects each of the first buses from the central processing unit to the first multiplexer.

20. The system as recited in claim 19, wherein for each input port coupled to one of the first buses, the port logic includes:

an input state device;

a buffer having a plurality of locations, the input of the buffer coupled to the output of the input state device;

a port multiplexer having as inputs the outputs of the buffer locations and the output of the input state device; and

validity logic having as inputs the output of the state device and a control input from the arbitration logic for granting the port access to the bus system, with the validity logic providing an output to control the port multiplexer.

21. The system as recited in claim 20, wherein the arbitration logic includes an arbitrator and scheduling logic.

22. The system as recited in claim 21, wherein the outputs of the port multiplexers in the port logic for each of the central processing units is connected to the inputs of the first multiplexer, with the port select logic comprising logic responsive to the outputs of the port multiplexers and to an input from the arbitrator to control the first multiplexer such as to selectively couple one of its inputs to its output.

23. The system as recited in claim 22, wherein the scheduling logic includes logic to grant the input ports access on a round robin basis.

24. A system as recited in claim 3, wherein said port select logic comprises:

a barrel shifter;

a first priority encoder having as inputs the outputs of the barrel shifter;

a schedule port ID multiplexer having as a first input the output of the priority decoder;

left shift one logic having an input coupled to the output of the first priority encoder and providing an output which is left shifted by one;

a next port multiplexer having as a first input the output of the left shift one logic;

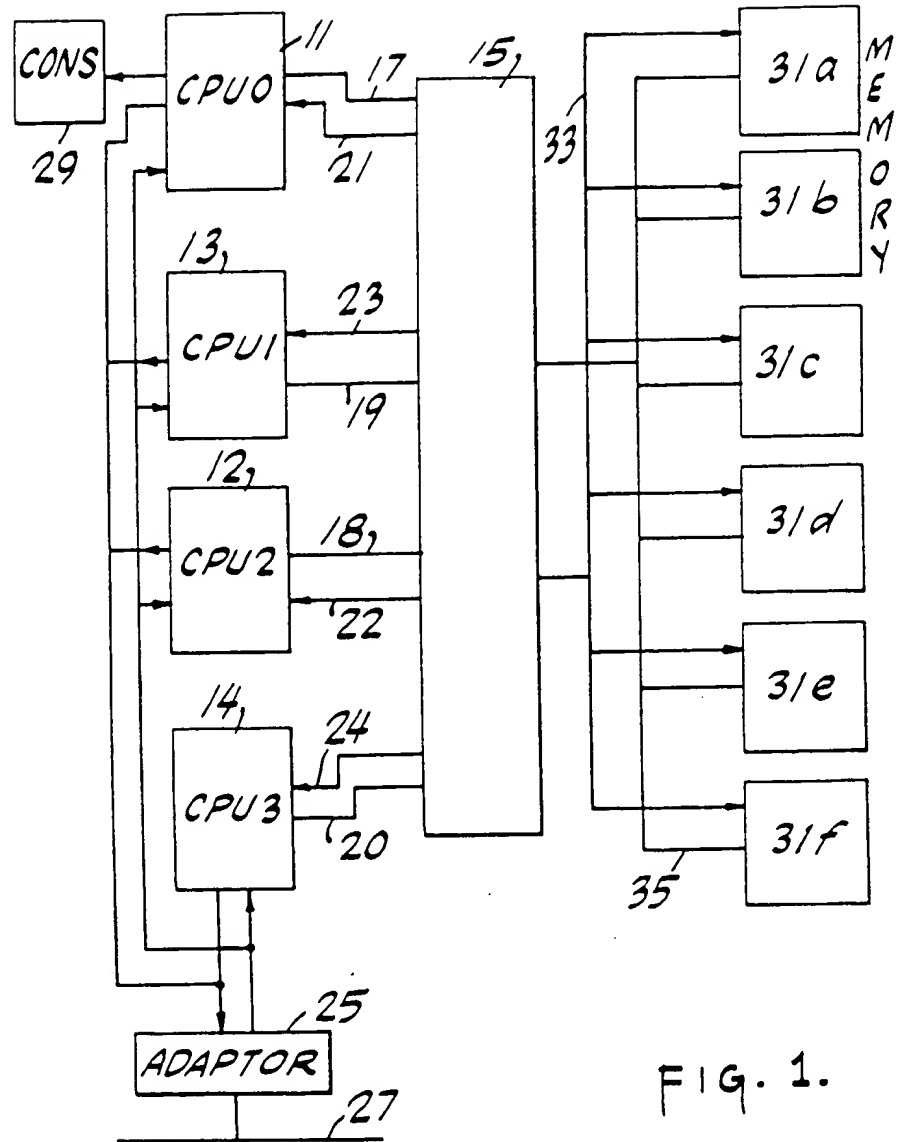
a second state device coupled to the output of the next port multiplexer, the output of the state device coupled back as a second

combining logic comprises two stages of combining logic. a first stage of combining logic having the first buses from the central processing units as inputs and providing its output to the memory controller; and

a second stage of combining logic having as inputs the output of the first stage of combining logic and the output of the memory controller, with the output of the second stage of combining logic being provided to the second buses coupled to the plurality of central processing units.

32. A system as recited in claim 31, wherein the first and second stages of combining logic comprise first and second multiplexers, and the arbitration logic comprises logic for controlling the multiplexers.
33. A method of implementing a high speed bus to which a plurality of bus elements are coupled comprising the steps of:
  - (a) coupling each of the bus elements to a central unit with a separate first uni-directional bus having a direction from the bus elements to the central unit;
  - (b) selecting one of the first bus inputs to the central unit to be an output; and
  - (c) coupling said output to each of the bus elements over a second uni-directional bus having a direction from the central unit to the bus elements.
34. The method as recited in claim 33, wherein the bus elements include a plurality of central processing units and a shared memory.
35. The method as recited in claim 34, wherein the selecting step further comprises selecting between the inputs on the first buses from the central processing unit and the bus from the memory.
36. The method as recited in claim 36, wherein the central processing units output commands requesting access to the memory, each command followed by an address and/or data and/or additional commands and further including:
  - storing up to three words output by a central processing unit at the central unit;
  - arbitrating access to the bus at the output of the central unit, including granting access to one of the central processing unit inputs by providing the stored command to the output and on successive cycles providing additional words stored at the central unit on the output; and

when all stored words have been provided on the output on the next and subsequent cycles providing any input words from the central processing unit directly on the output whereby, by storing a number of words in the central unit, once the central processing unit is granted access to the bus, a continual flow of data will occur without any dead time.



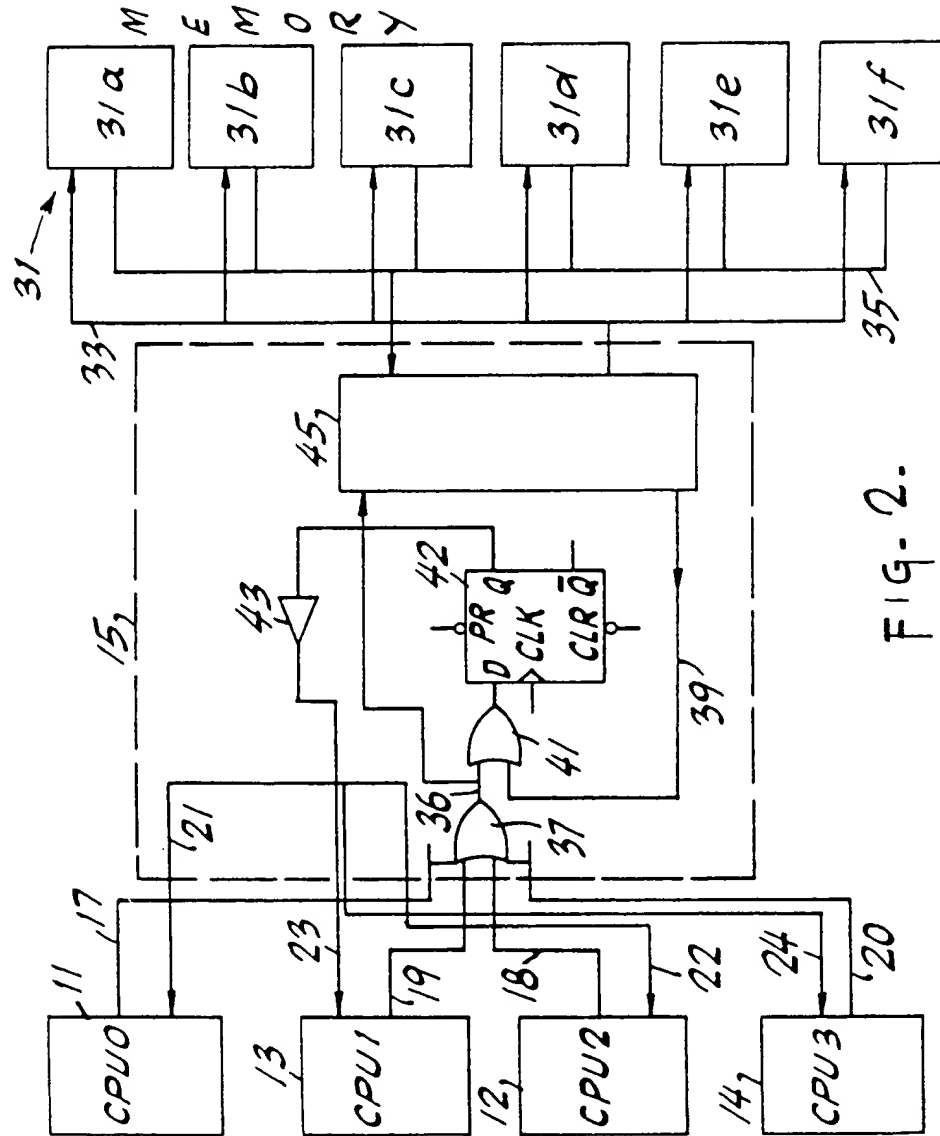
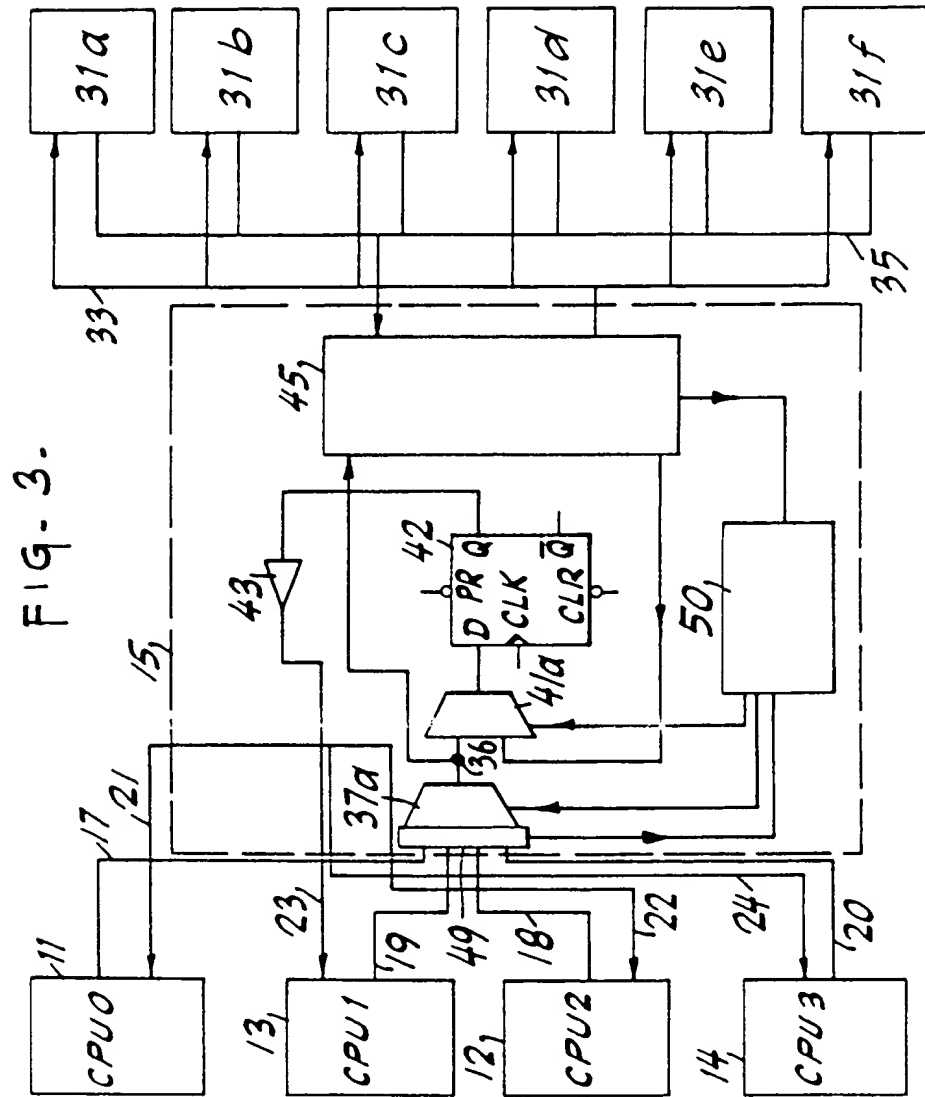
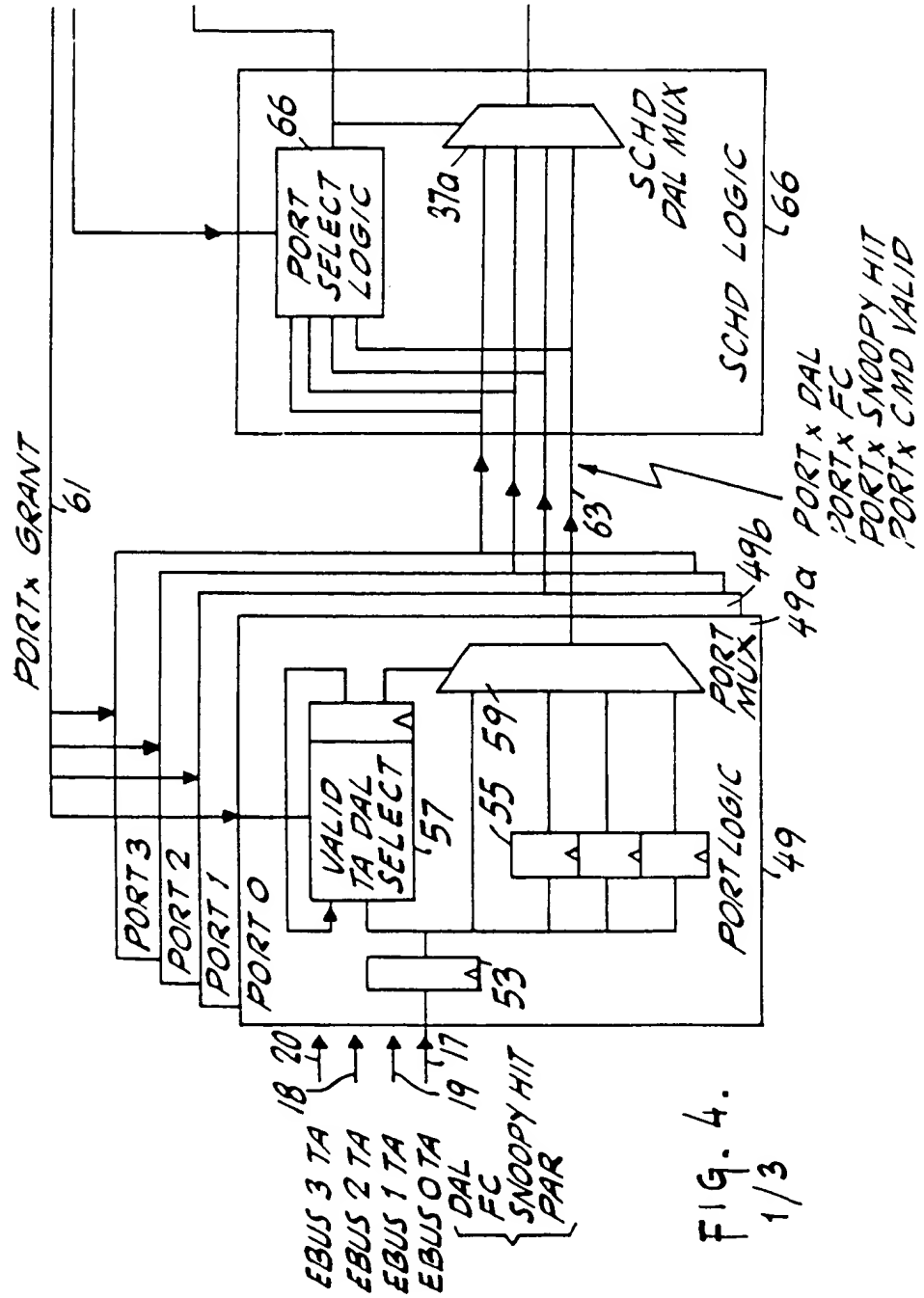


FIG-2.







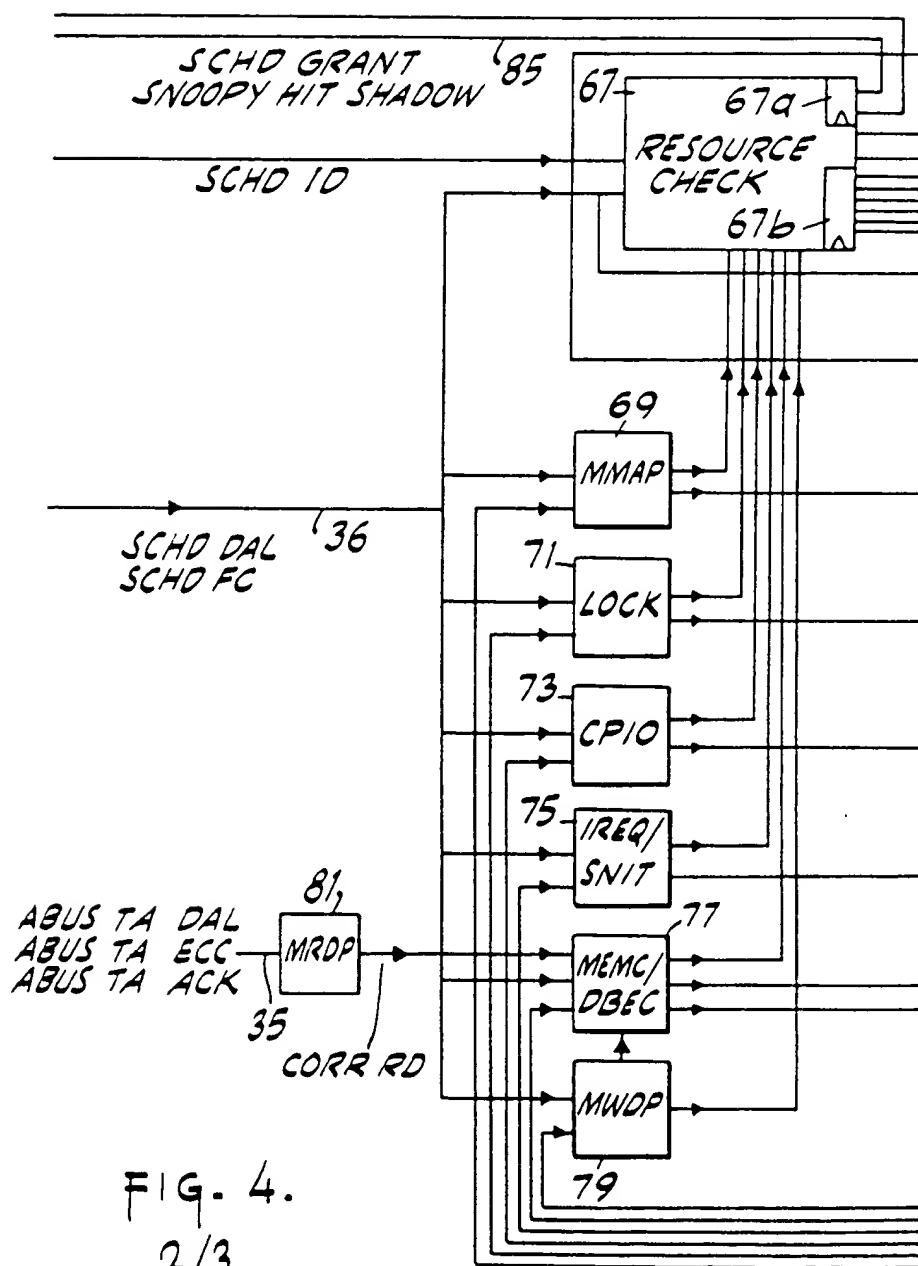


FIG. 4.  
2/3

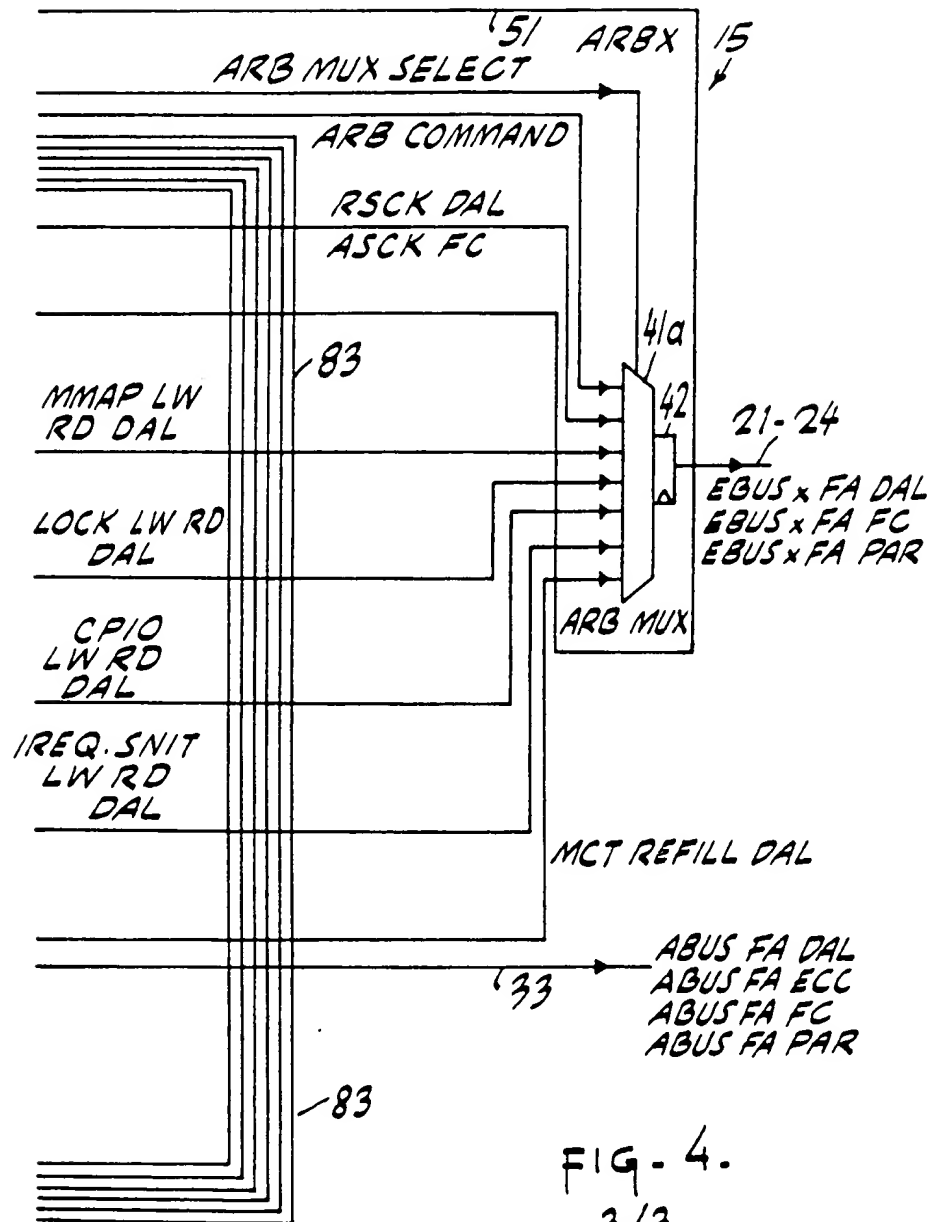
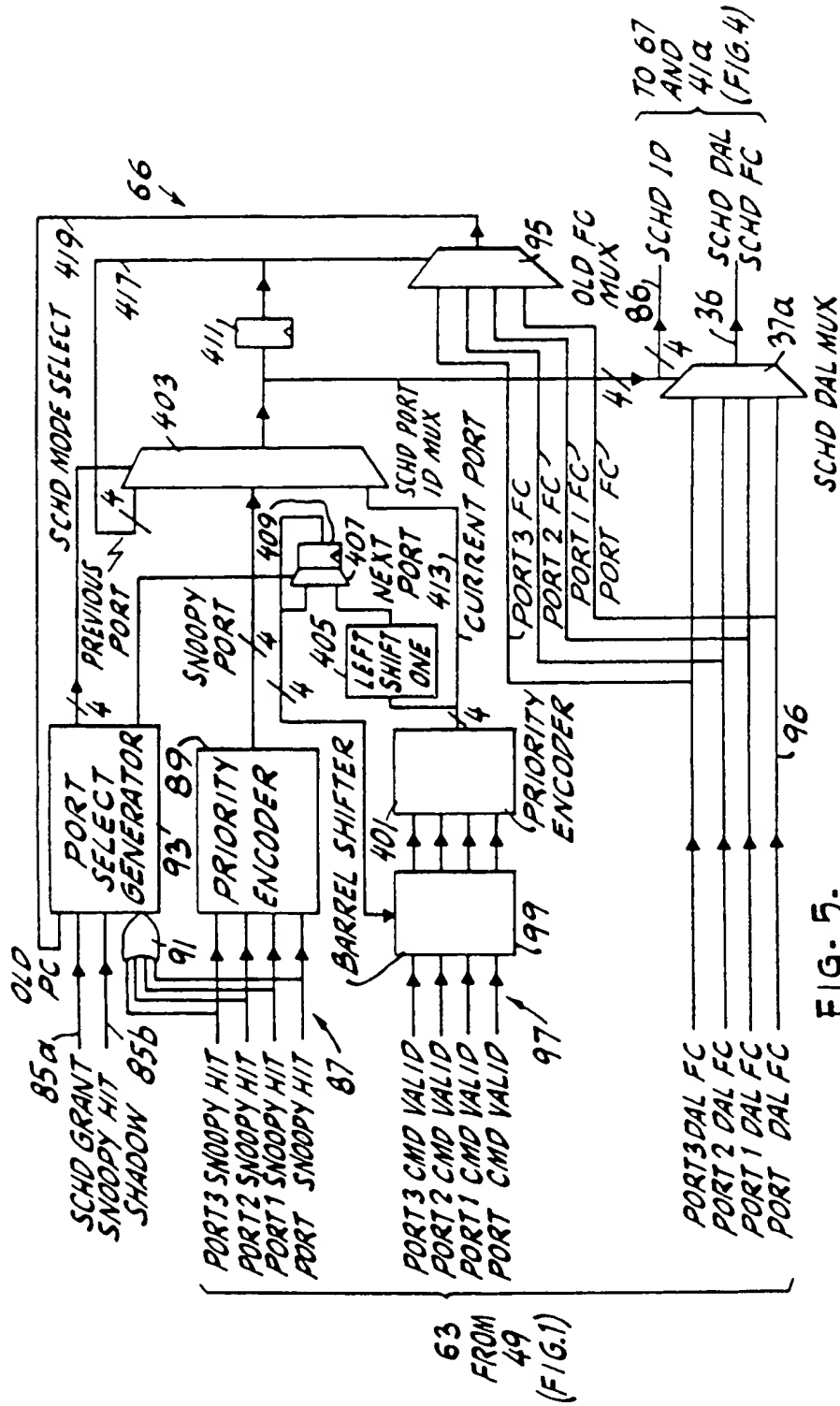


FIG - 4.  
3/3



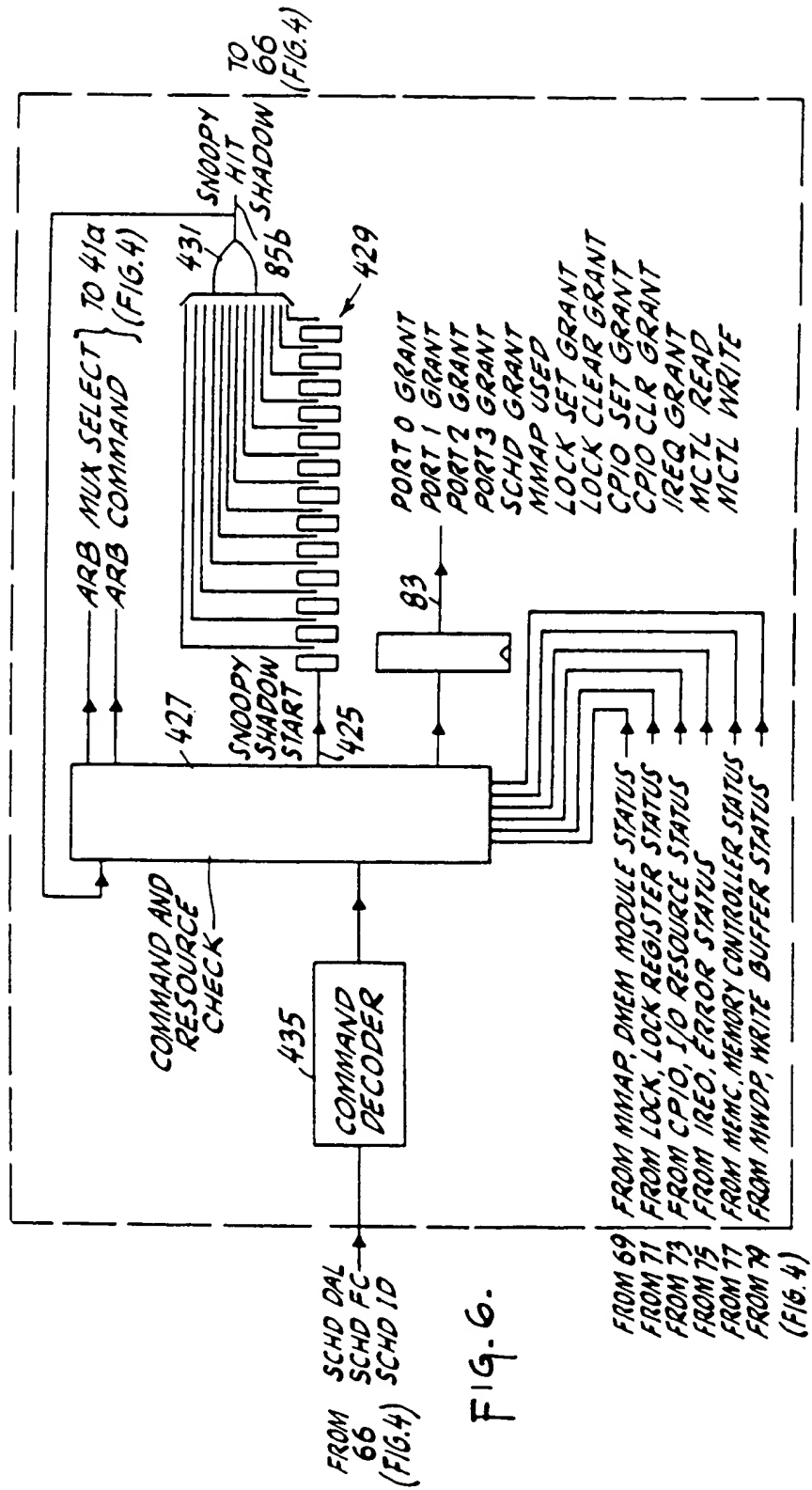


FIG. 6.

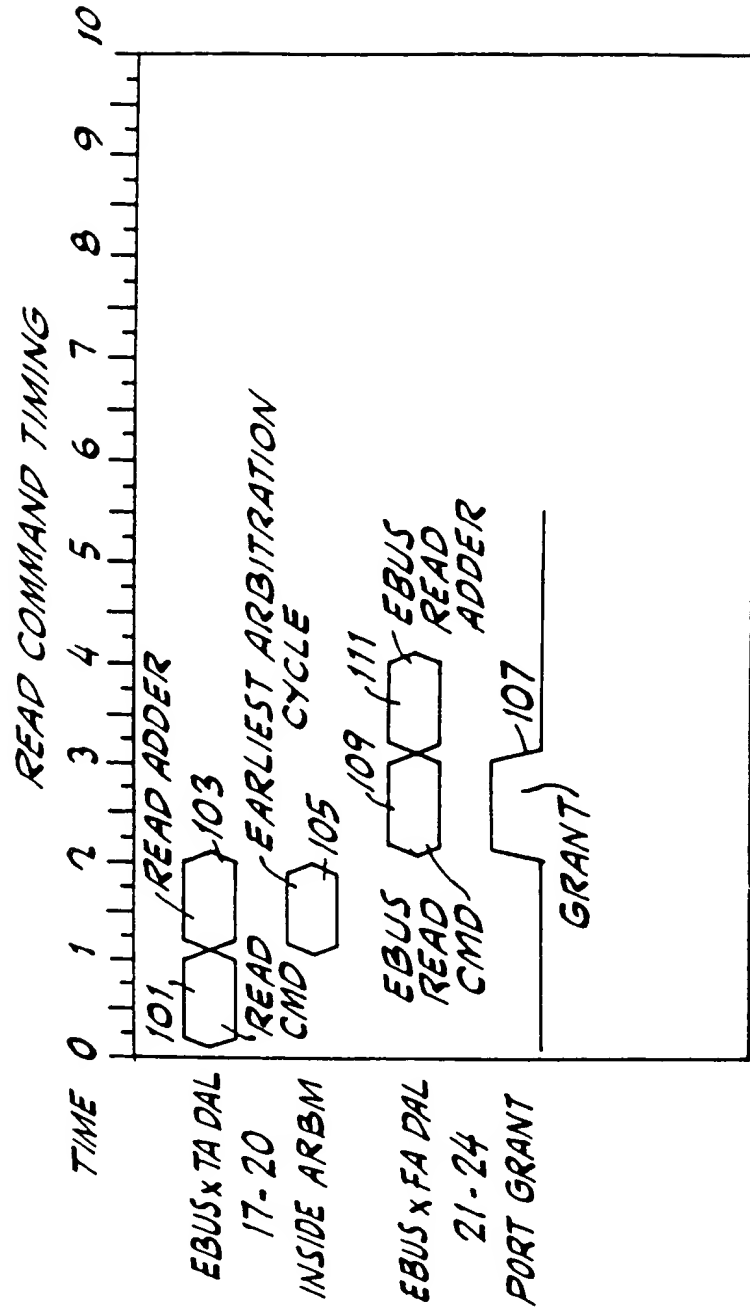


FIG. 7.

# SNOOPY REFILL COMMAND TIMING

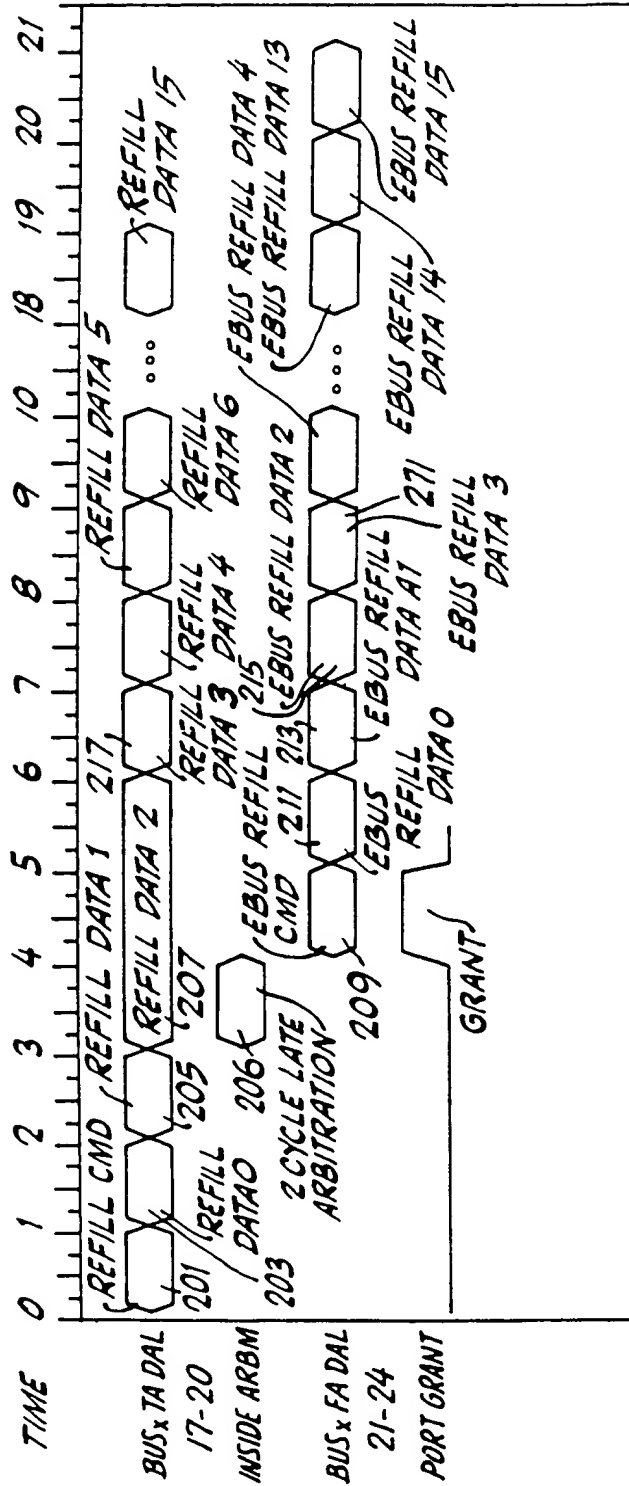


FIG. 8.



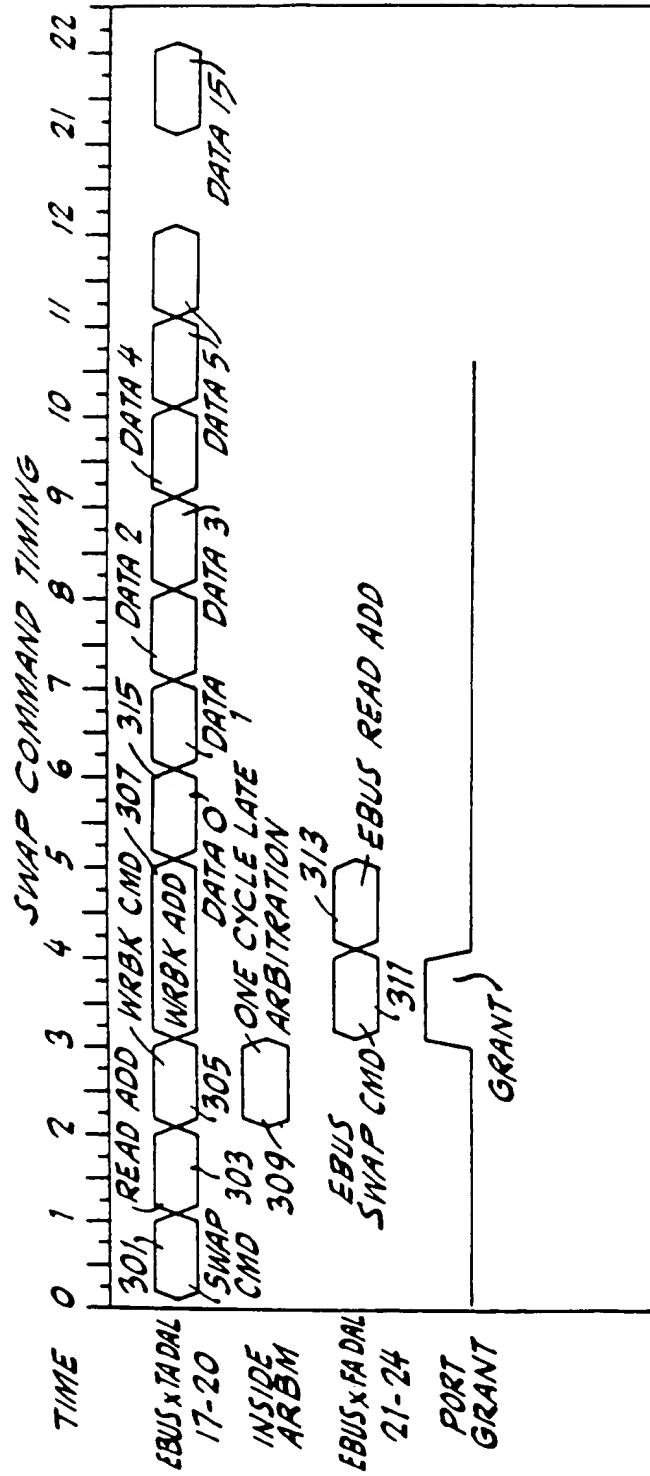


FIG. 9.



European  
Patent Office

## EUROPEAN SEARCH REPORT

Application Number

EP 91 11 0755

### DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	DE-A-3 340 123 (HEIDTMANN ET AL) - - -	1-10,14, 30,33-35	G 06 F 15/16 G 06 F 13/36
A	DE-A-3 340 123 ( ) * page 6, line 25 - page 11, line 35; figures 1-6 ** - - -	15-22,31, 32,36	
Y	DE-A-3 935 707 (K S D CO.,LTD.) * column 7, line 32 - column 14, line 45; figures 1-5 ** - - -	1-10,14, 30,33-35	
Y	WO-A-8 704 826 (EASTMAN KODAK COMPANY) * claims 1,6; figure 2 ** - - - - -	1-10,14, 30,33-35	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)  G 06 F
Place of search  The Hague		Date of completion of search  31 October 91	Examiner  WANZEELE R.J.
<div><div>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention</div><div>E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... &amp; : member of the same patent family, corresponding document</div></div>			

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Patentanwälte  
European Patent Attorneys

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U.S.A.

January 17, 1992

European patent application No. 91 110 755.5  
Digital Equipment Corporation  
Your ref.: 17380/1103  
Our file: DKK 73 EP B/ro

PROCEEDING FURTHER WITH THE EUROPEAN PATENT APPLICATION

Dear Ms. Murphy,

according to the enclosed \*communication the EPO requests to indicate whether it is desired to proceed further with the European patent application.

According to your general instructions we will confirm to the EPO that it is intended to proceed with the application unless we receive instructions to the contrary before

March 8, 1992.

Yours sincerely,

*Betten*

Jürgen Betten

Encl.

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Datum/Date

14/01/92

08.02.92 / he  
V708.06.92

Zeichen/Ref /Réf DKK 73 EP	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°. 91110755.5-2201 / 0464708
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire DIGITAL EQUIPMENT CORPORATION	

PROCEEDING FURTHER WITH EUROPEAN PATENT APPLICATION

PURSUANT TO ARTICLE 96 (1) AND RULE 51 (1) EPC

The date on which the European Patent Bulletin mentions the publication of the European search report for the above-identified European patent application (publication number: 0464708) is

08.01.92.

Since you have filed a request for examination of your above identified European patent application prior to the transmission of the European search report, you are hereby invited to indicate whether you desire to proceed further with the application.

If you do not reply to this invitation before the end of six months

after the above mentioned publication date, the application will be deemed to be withdrawn (Article 96 (3) EPC).

You are invited, if you wish, to comment on the European search report and to amend, where appropriate, the description, claims and drawings (Rule 51 (1) EPC).

In all future communications to the EPO, please quote the application number plus Directorate number.

RECEIVING SECTION

Registered letter

EPO FORM 1082 08.89



DATE 15MAY97

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REPORT 020202

PAGE 3

LIST OF ANNUITIES

FROM 01JUN96 TO 31JUN97

COMPUTER PACKAGES INC.  
414 HUNGERFORD DR. #300  
ROCKVILLE MD. 20850 U.S.A.

PATENT NO. APPLICATION NO. PUBLICATION NO. DATE

YEAR

AMOUNT

LATE FEE TITLE HOLDER

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YOUR REF.

91110755.5	0464708	28JUN91	7	1,450	DIGITAL EQUIPMENT CORP DE90-0282	
91110772.0	0464715	28JUN91	7	1,450	DIGITAL EQUIPMENT CORP DE90-0283	
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TOTAL

7

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RECEIPT FROM EPO SHOWING THAT MAINTENANCE FEE WAS PAID ON APPLICATION NO. 91110755.5

05-Mar-1998

D E C I A W

## PATENT TRACKING CPI STATUS REPORT

16:58:02

Docket No: PD90-0282

Title: HIGH SPEED BUS SYSTEM

Ctry Priority: US

Disc Status: C

Resp Attorney: MALONEY, DENIS

Inventors: DEROSA,  
RAMANUJAN,  
SAMARAS,  
KELLER,  
STEWART,

Classifications \*\*

Digital  
2140.00

USPTO Class / Subclass

International Class / Subclass

Group Art Unit

Applications \*\*

Country

Status

Application No.

Date Filed

Patent Number

Date Issued

Resp Firm

Docket Attorney

Country	Status	Application No.	Date Filed	Patent Number	Date Issued	Resp Firm	Docket Attorney
AU	A	75281/91	23-Apr-1991	636739	30-Aug-1993	PHILLIPS	
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EPO	E	91110755.5	28-Jun-1991	0464708	08-Jan-1992	BETTEN	
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GB	I	91110755.5	28-Jun-1991	0474708	08-Jan-1992	KILBURN	
IT	I	91110755.5	28-Jun-1991	0464708	08-Jan-1992	STUDIO TOR	
JP	A	139187/91	11-Jun-1991			NAKAMURA	
NL	A	91110755.5	28-Jun-1991	0474708	08-Jan-1992	HAAGSCH	PACIULAN
US	A	077546,547	29-Jun-1990			KENYONI	

Docket No: PD90-0282CONT1

Title: HIGH SPEED BUS SYSTEM

Ctry Priority: US

Disc Status: L

Resp Attorney: MALONEY, DENIS

Inventors: DEROSA, JOHN  
RAMANUJAN, RAJ  
SAMARAS, WILLIAM  
KELLER, JAMES  
STEWART, ROBERT

Classifications \*\*

Digital  
2140.00

USPTO Class / Subclass

International Class / Subclass

Group Art Unit

Applications \*\*

Country

Status

Application No.

Date Filed

Patent Number

Date Issued

Resp Firm

Docket Attorney

Country	Status	Application No.	Date Filed	Patent Number	Date Issued	Resp Firm	Docket Attorney
US	A	08/047,164	12-Apr-1993			KENYONI	PAPPAS